Please visit www. performanceparts.ford.com for the most current instruction and warranty information.

PLEASE READ ALL OF THE FOLLOWING INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION. AT ANY TIME YOU DO NOT UNDERSTAND THE INSTRUCTIONS, PLEASE CALL THE FORD PERFORMANCE TECHLINE AT 1-800-367-3788

Kit includes:

2	Cast Iron Top Mounts
8	Top Mount and Shock Rod attachment nut
2	1 Cable Tie (Bronco Raptor use only)

Sections:

a. Front Suspension Assembly Removal – Bronco Raptor
b. Front Suspension Assembly Removal – F-150 Raptor
c. Shock Absorber Removal and Disassembly
d. Shock Absorber Assembly and Installation
e. Front Suspension Assembly Installation – Bronco Raptor
f. Front Suspension Assembly Installation – F-150 Raptor
g. Fastener Torque Specifications

Front Suspension Removal and Assembly – Bronco Raptor

Special Tool(s) / General Equipment

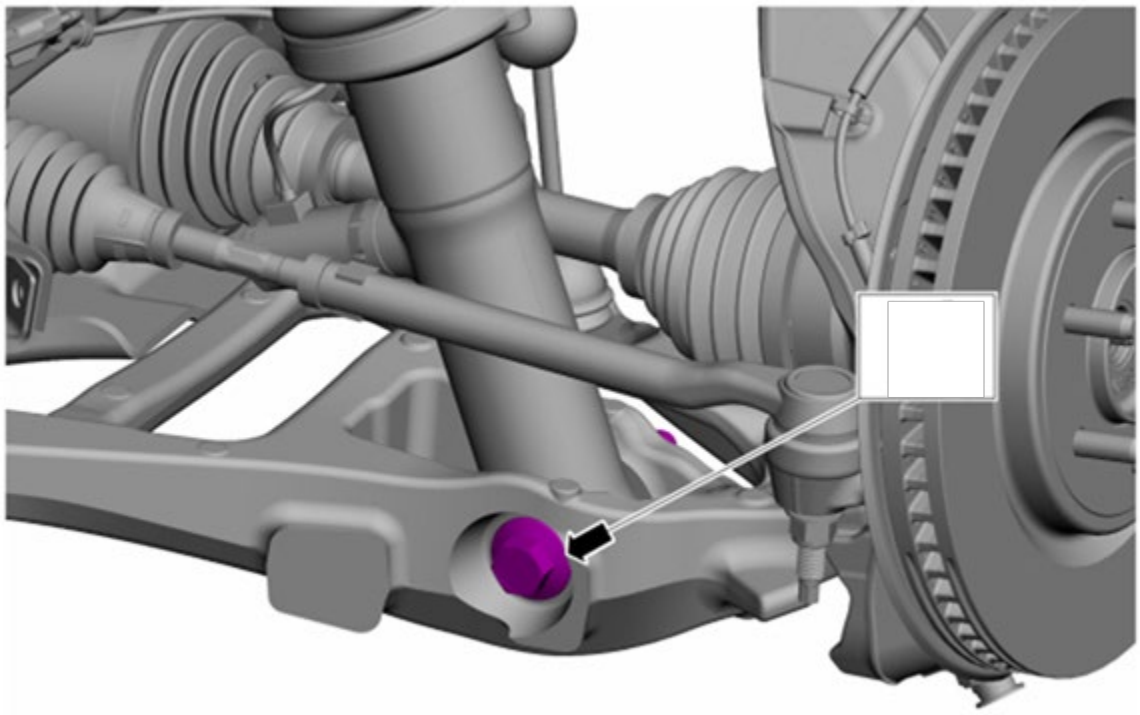
Vehicle/Axle Stands

Removal

NOTICE: Suspension fasteners are critical parts that affect the performance of vital components and systems. Failure of these fasteners may result in major service expense. Use the same or equivalent parts if replacement is necessary. Do not use a replacement part of lesser quality or substitute design. Tighten fasteners as specified.

NOTE: *Removal steps in this procedure may contain installation details.*

1. Remove the wheel and tire.
2. Remove the shock absorber assembly lower bolt.

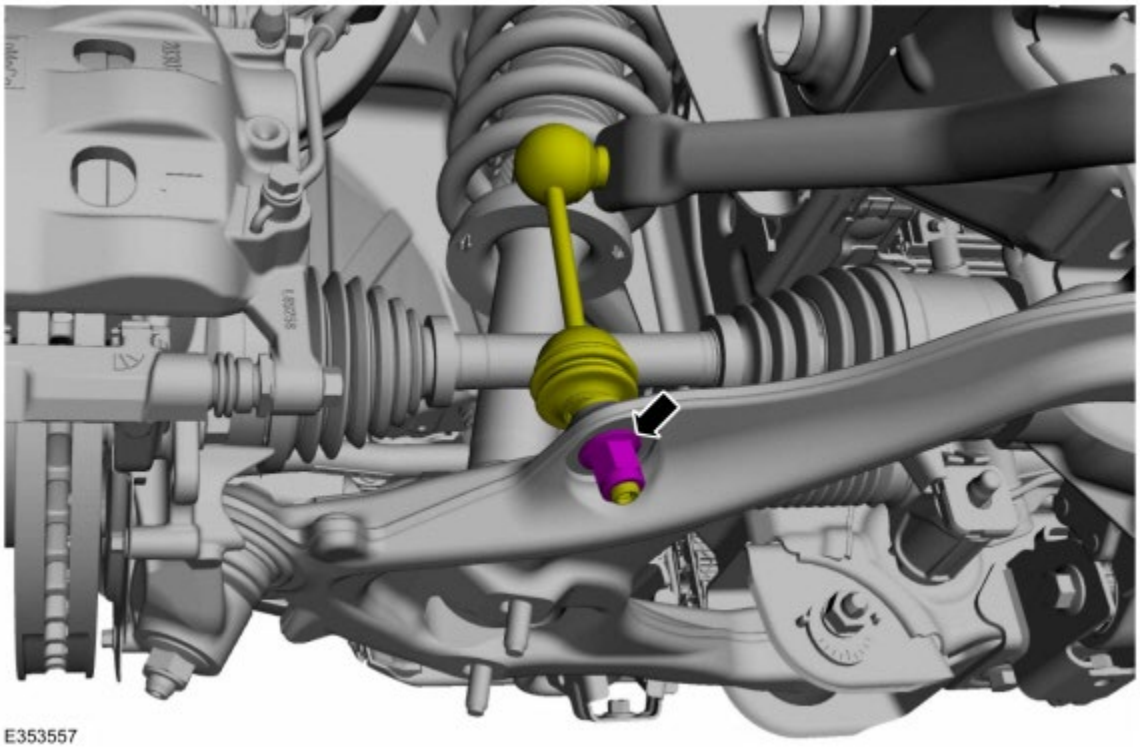


E387745

4. **NOTE:** *The stabilizer bar links are designed with low friction ball joints that have a low breakaway torque.*

   NOTE: *Use the hex-holding feature to prevent the stud from turning while removing the nuts.*

   Remove the stabilizer bar link lower nut.

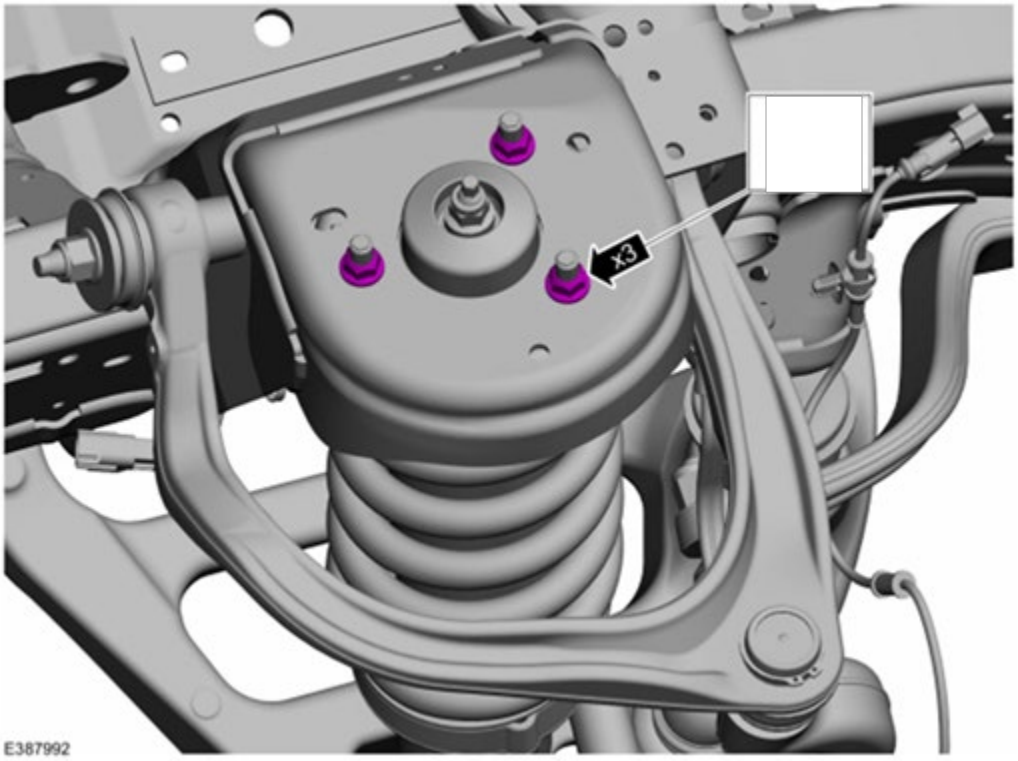


5. Remove the wheel knuckle.

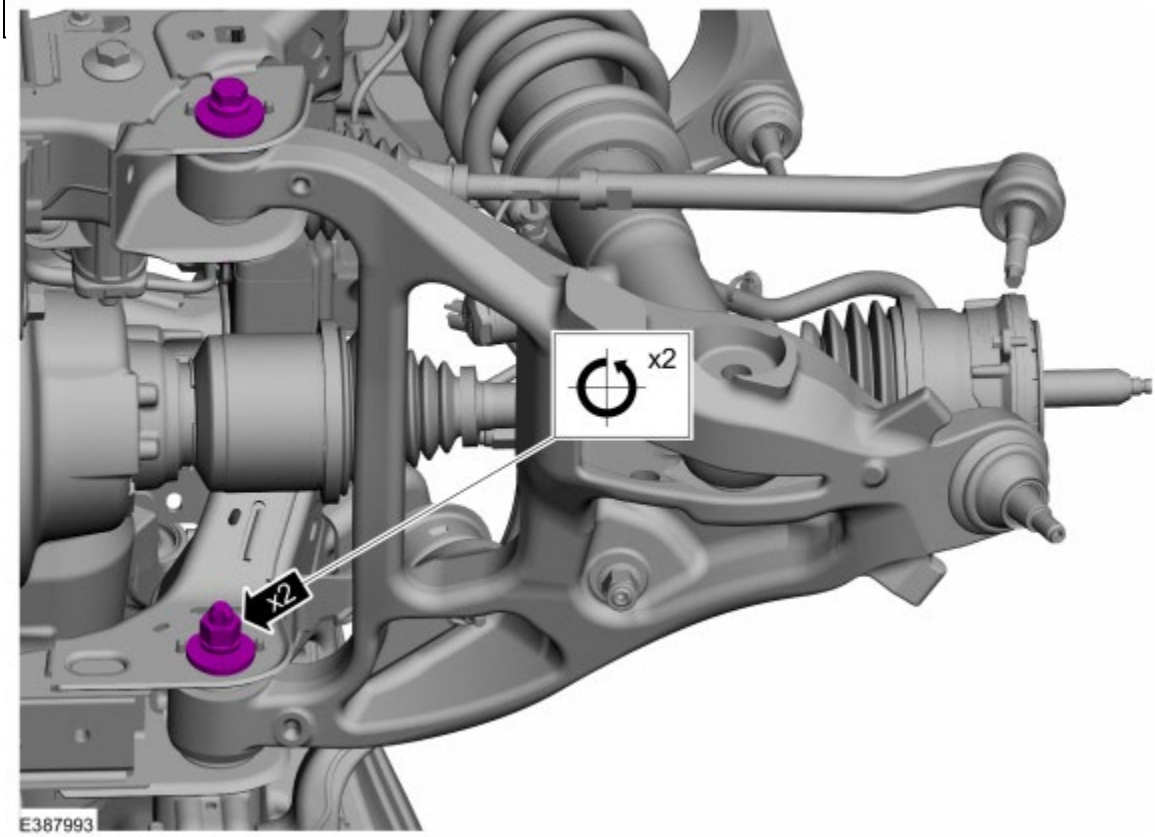
6. Remove the engine rear undershield.

7. **NOTE:** *Note the position of the components before removal.*

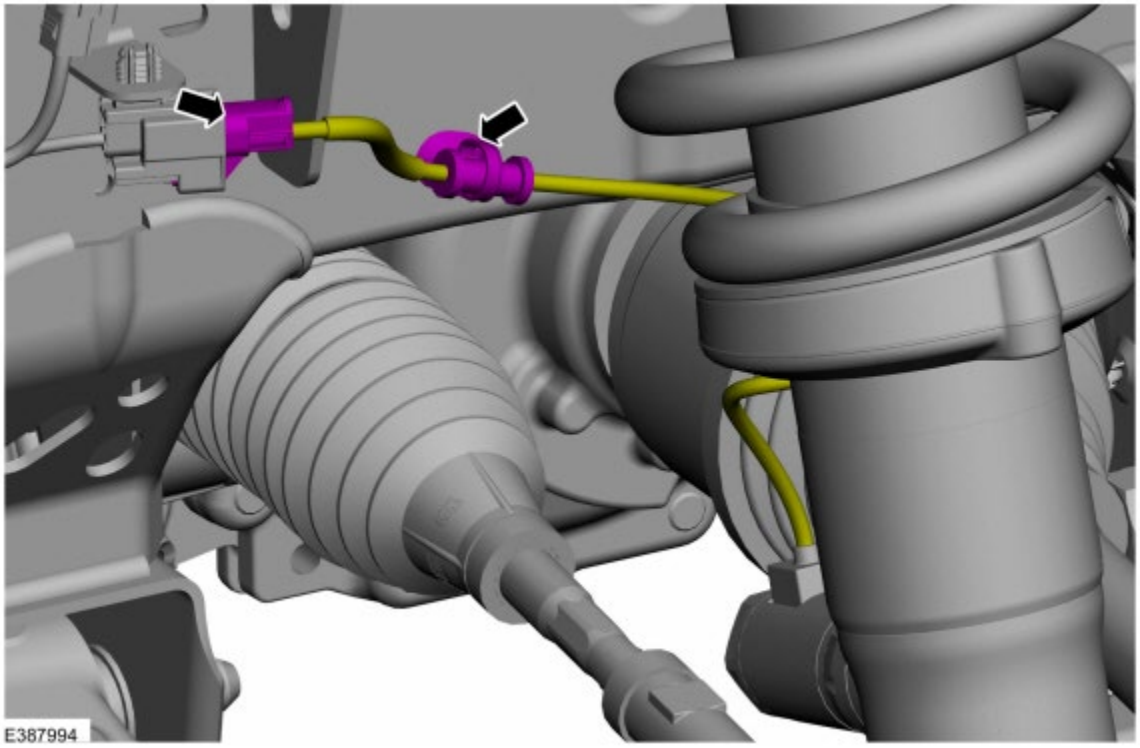
   Remove and discard the shock absorber and spring assembly upper nuts.



8. Loosen the lower control arm mounting bolts.

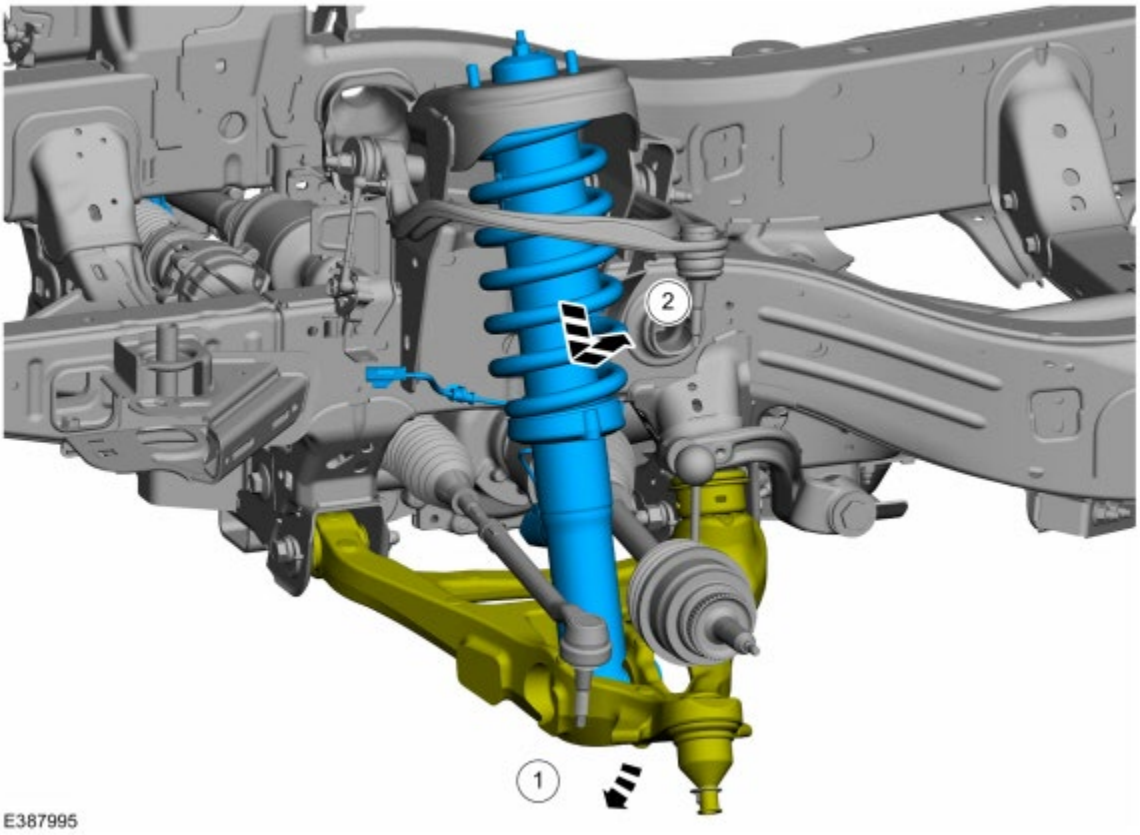


9. Disconnect the electrical connector, detach the retainer and position aside the wiring harness.



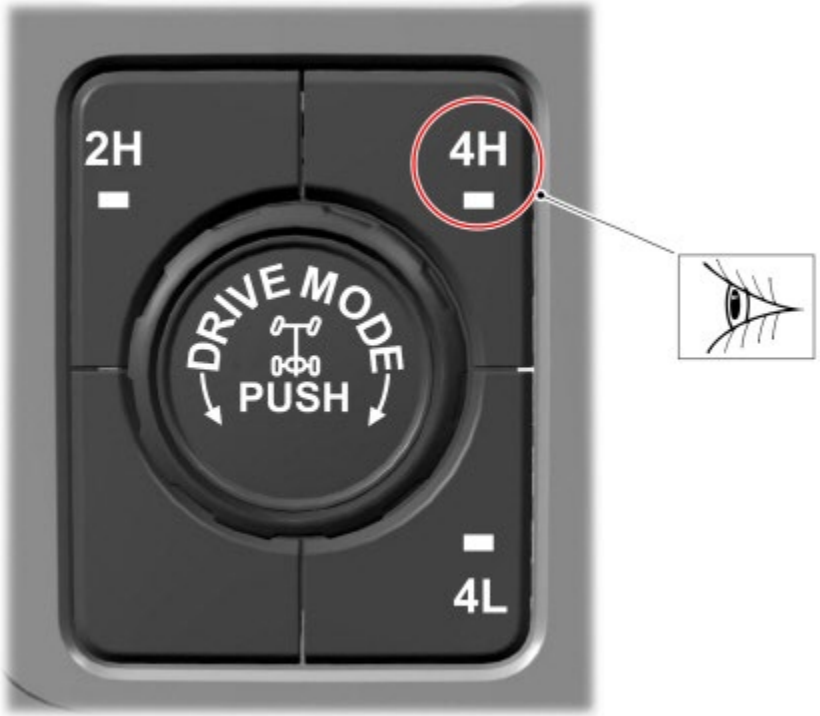
10.

1. Position the lower arm down to gain clearance for removing the shock absorber and spring assembly.
2. Remove the shock absorber and spring assembly.



Front Suspension Assembly Removal – F-150 Raptor

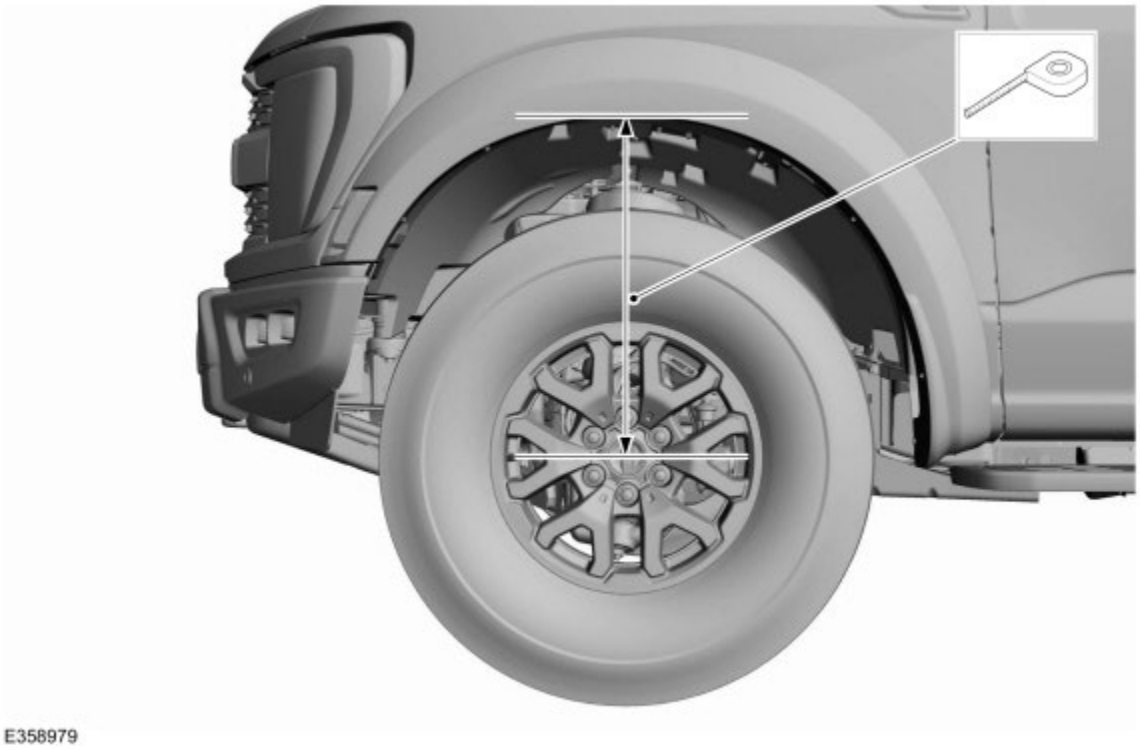
1. Select 4H on the ATCM (all terrain control module).



E360183

NOTICE: Suspension fasteners are critical parts that affect the performance of vital components and systems. Failure of these fasteners may result in major service expense. Use the same or equivalent parts if replacement is necessary. Do not use a replacement part of lesser quality or substitute design. Tighten fasteners as specified.

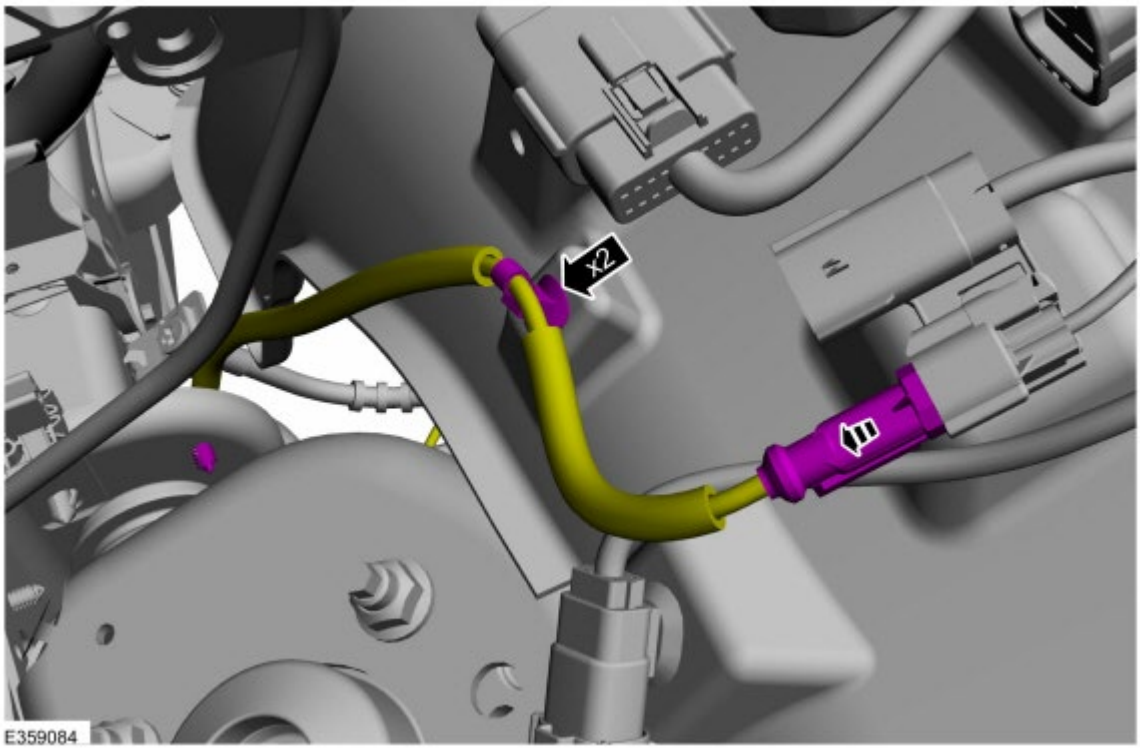
2. Measure the distance from the center of the hub to the lip of the fender with the vehicle in a level, static ground position (curb height).



3. Remove the wheel and tire.

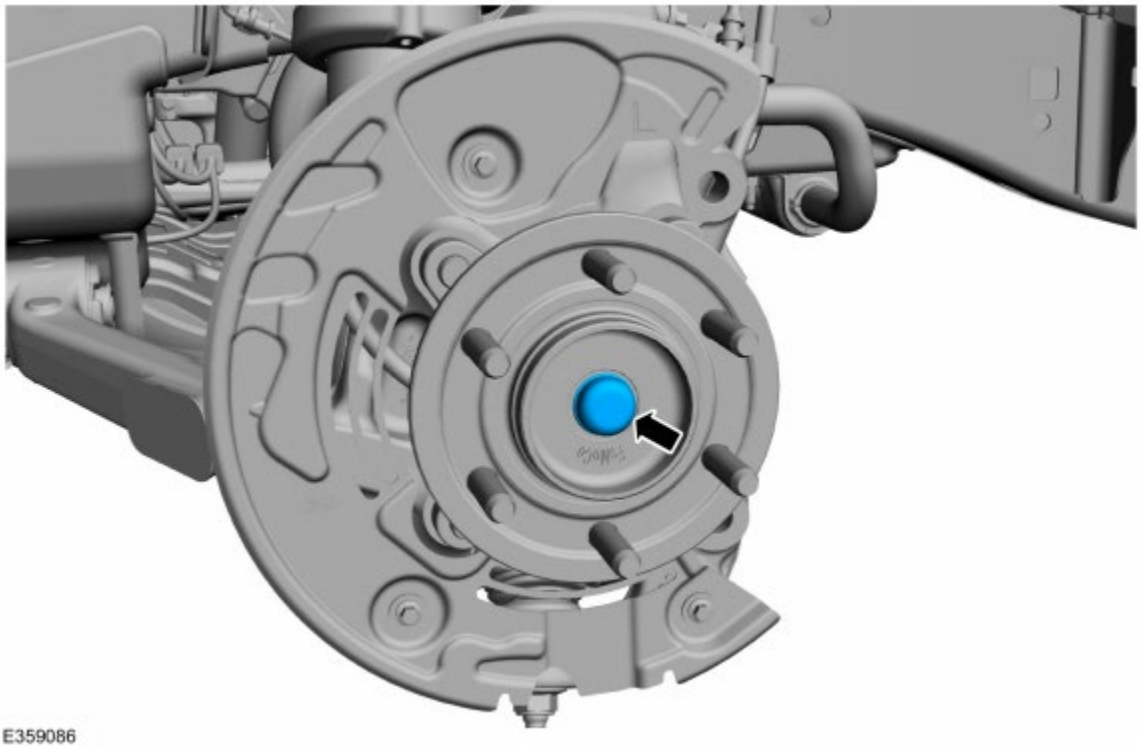
4. **NOTE:** *The wheel speed sensor electrical connector is located in the engine compartment secured to the fender apron.*

   Disconnect the wheel speed sensor electrical connector and detach the retainers.



5. Remove the brake disc.

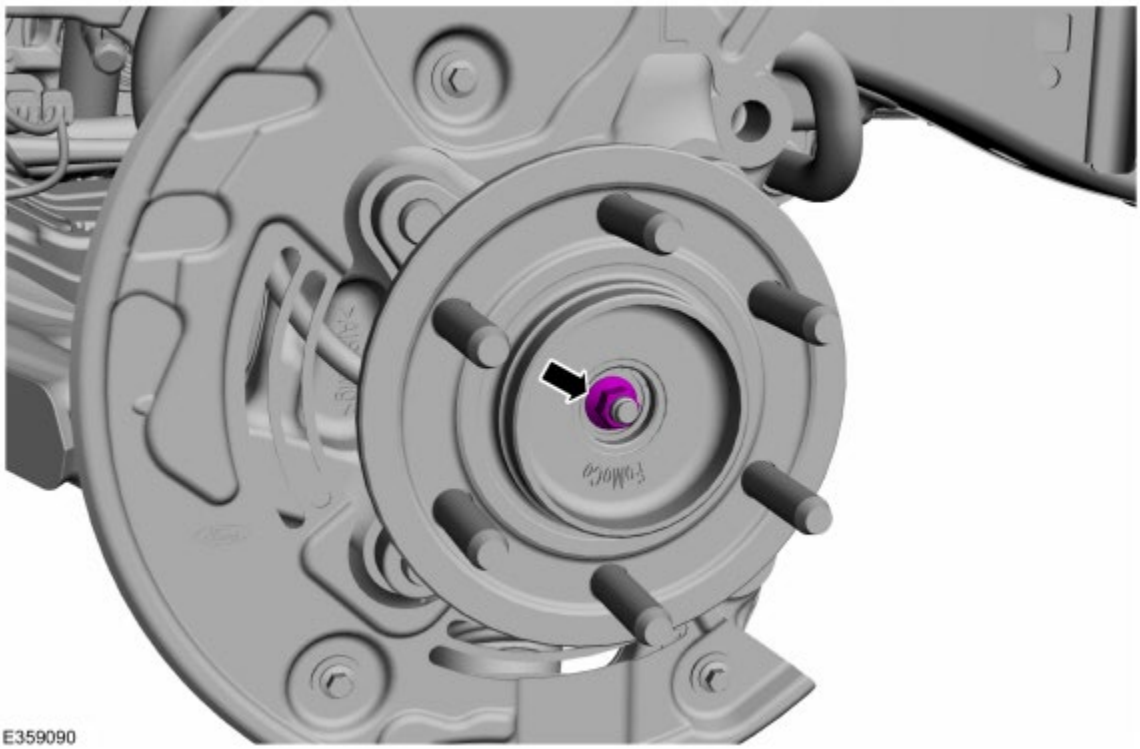
6. Remove the wheel hub nut dust cap.



E359086

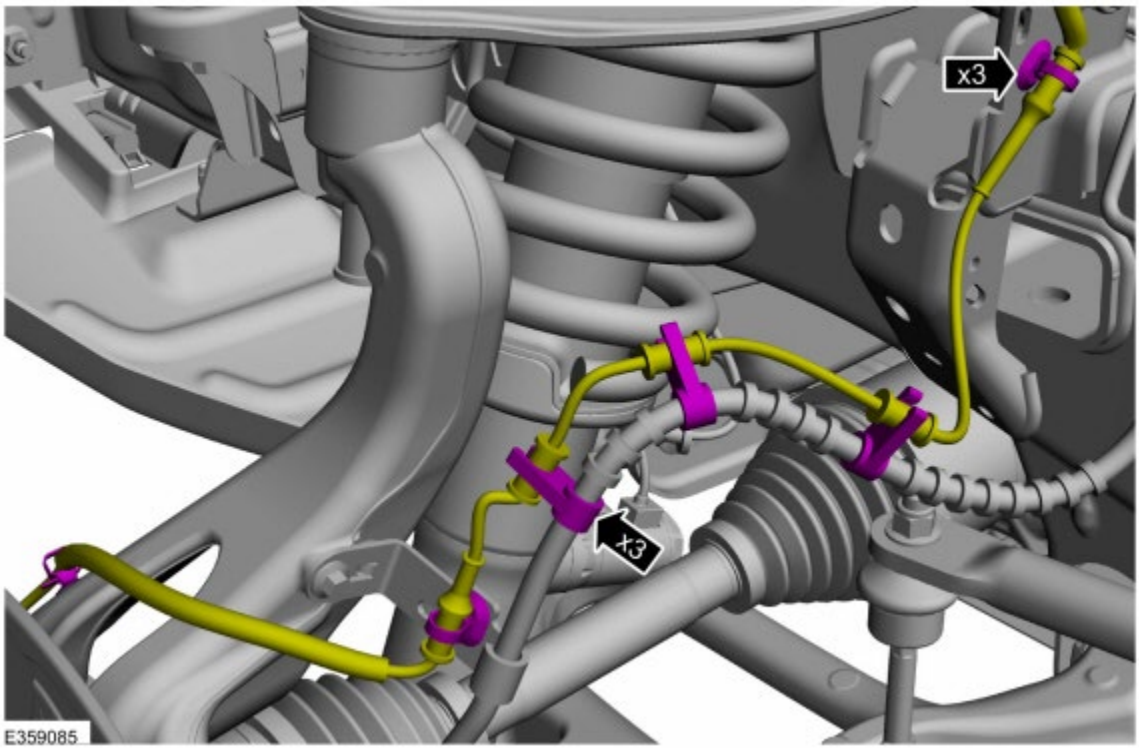
7. **NOTICE: When installing the halfshafts measure the depth of the CV (constant velocity) shaft threaded end to the inner bearing race. The minimum depth is 15.5 mm (0.61 in). If the depth is less than 15.5 mm (0.61 in) rotate the CV shaft to clear a binding condition between the IWE (integrated wheel end) and CV splines. Installing the axle nut and tightening without the proper depth of protrusion will result in damage to the IWE.**

   Remove the wheel hub nut.

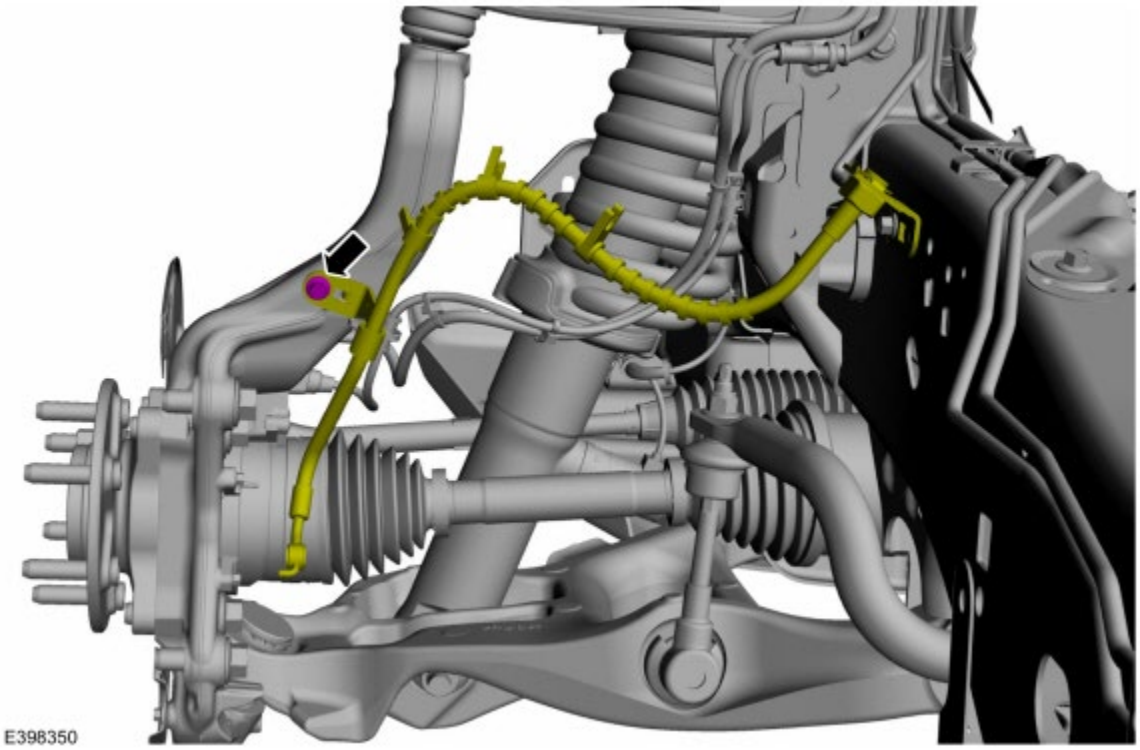


8.

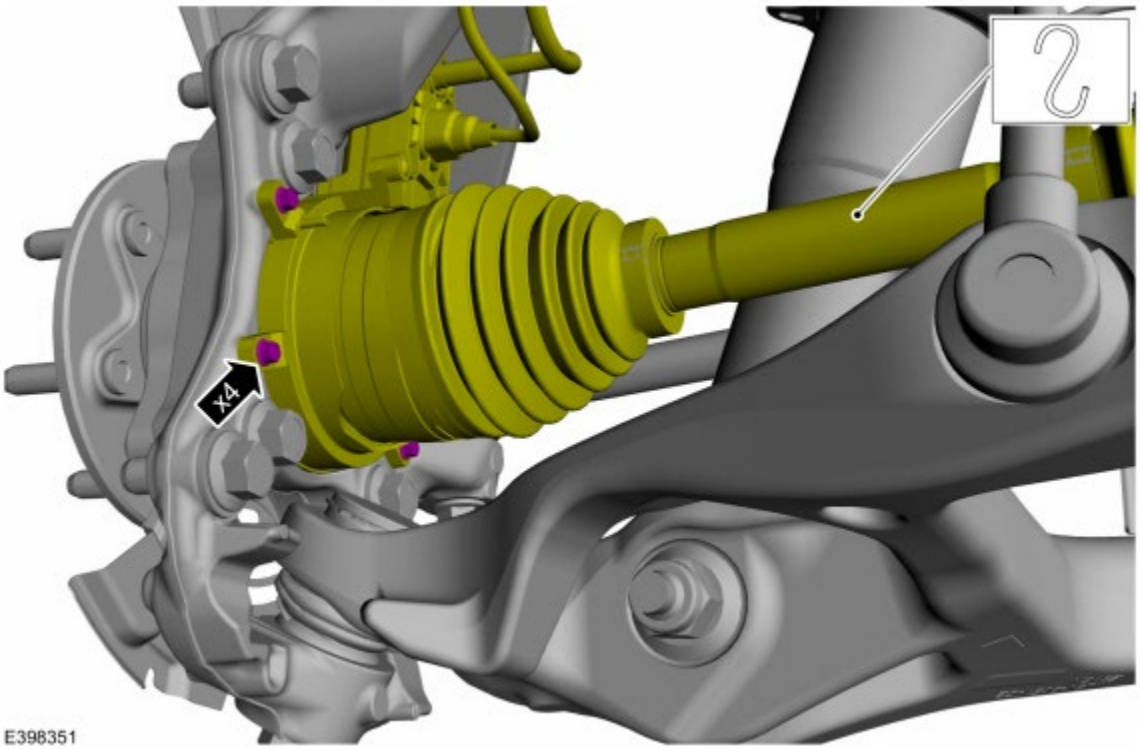
- Detach the wheel speed sensor wire from the brake hose.
- Detach the wheel speed sensor wire retainers and position aside the wheel speed sensor wire.



9. Remove the flexible brake hose bracket bolt and position the flexible brake hose aside.



10. Remove the IWE bolts and support the halfshaft using mechanic's wire.

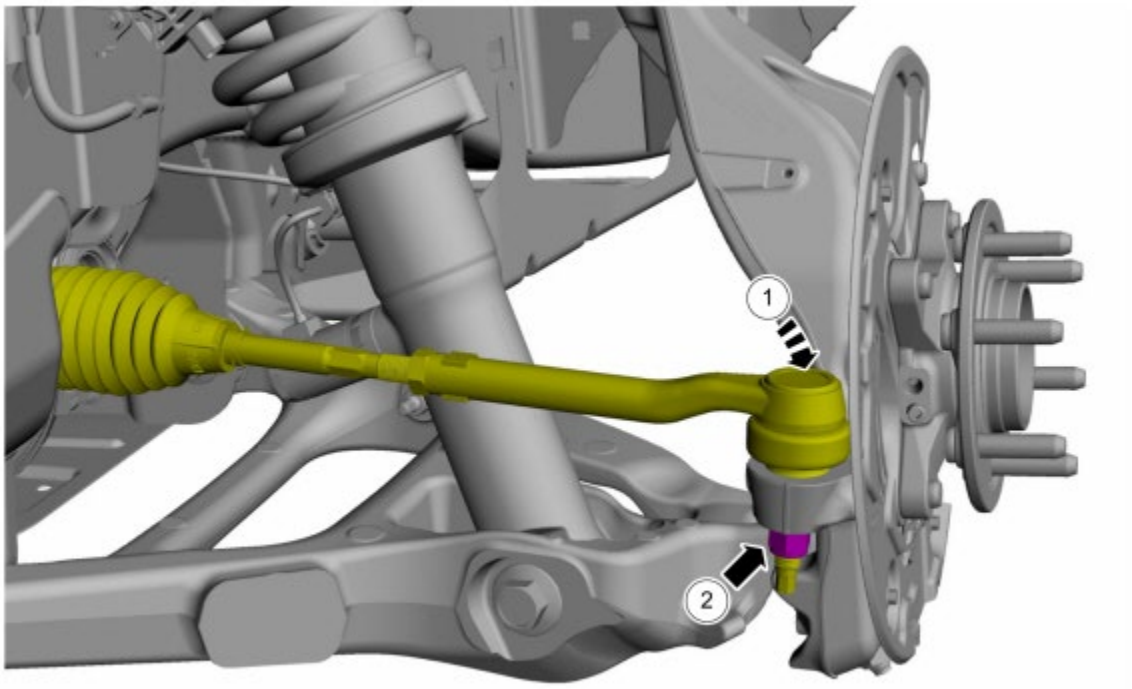


11. **NOTICE: Do not use a hammer to separate the outer tie-rod end from the wheel knuckle or damage to the wheel knuckle may result.**

    NOTICE: Use care when installing the tie rod separator or damage to the outer tie-rod end boot may occur.

    NOTE: *Use the hex-holding feature to prevent the component from turning.*

    Remove the tie rod end nut and separate the tie rod end from the wheel knuckle.

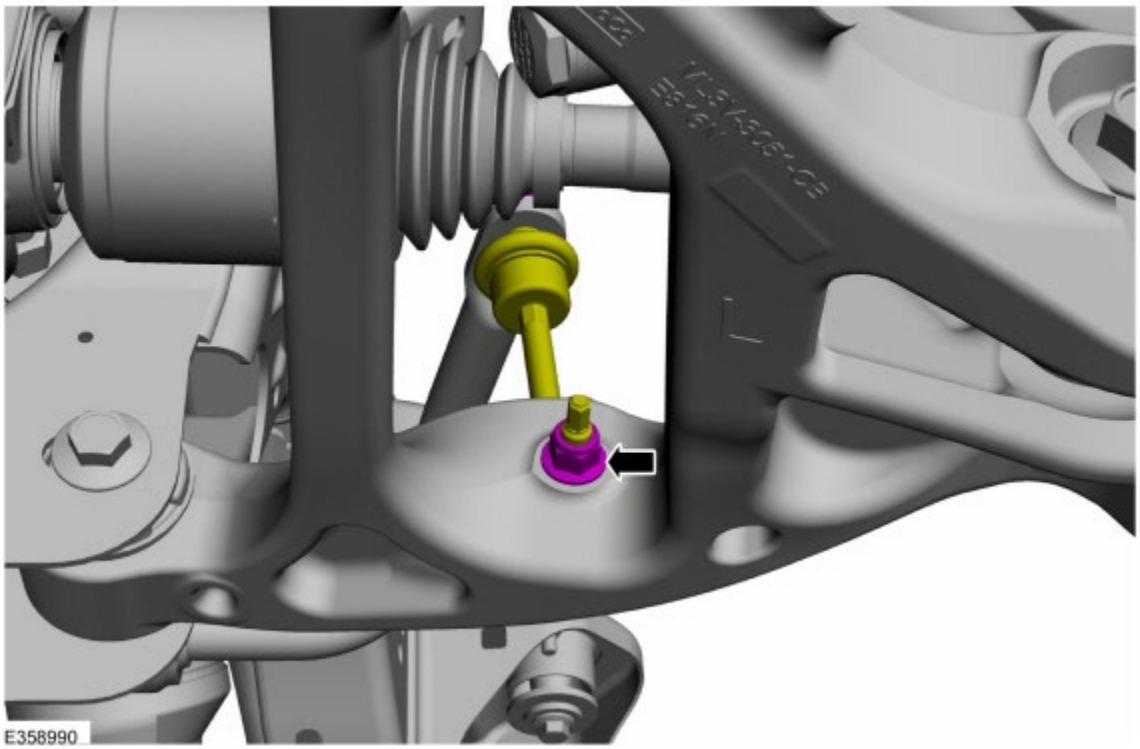


E398353

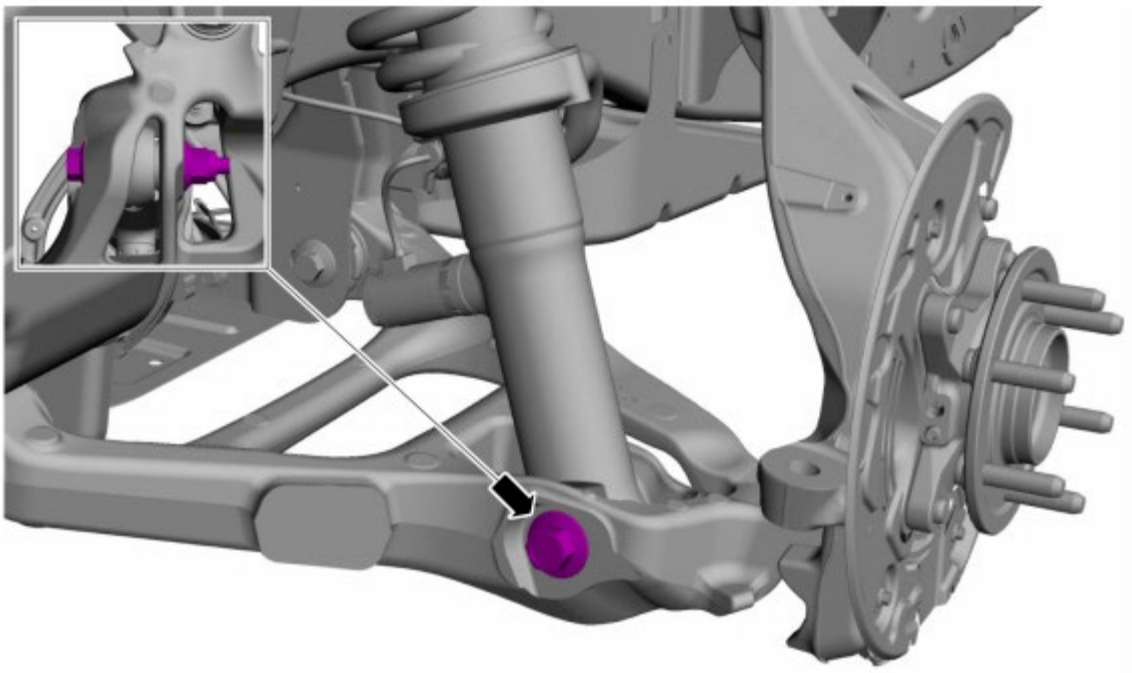
12. **NOTE:** *The stabilizer bar links are designed with low friction ball joints that have a low breakaway torque.*

    NOTE: *Use the hex-holding feature to prevent the component from turning.*

    Remove the front stabilizer bar link lower nut and position the stabilizer bar link aside.



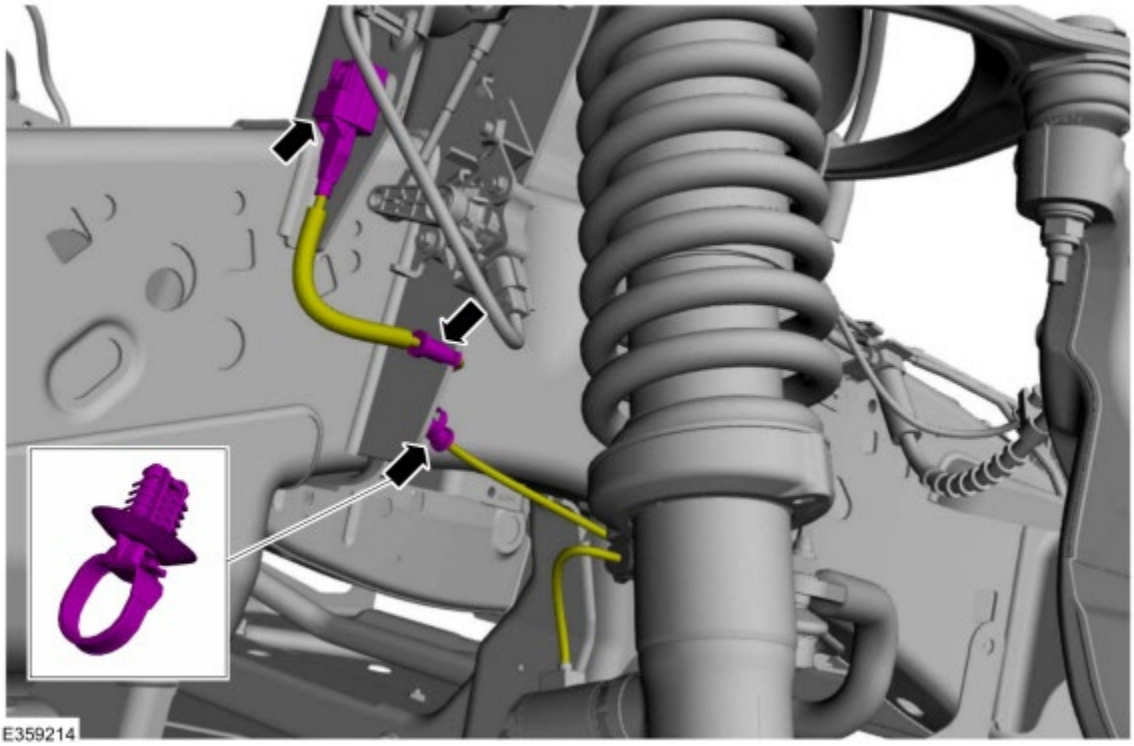
13. Remove the lower shock absorber nut and bolt.



E398355

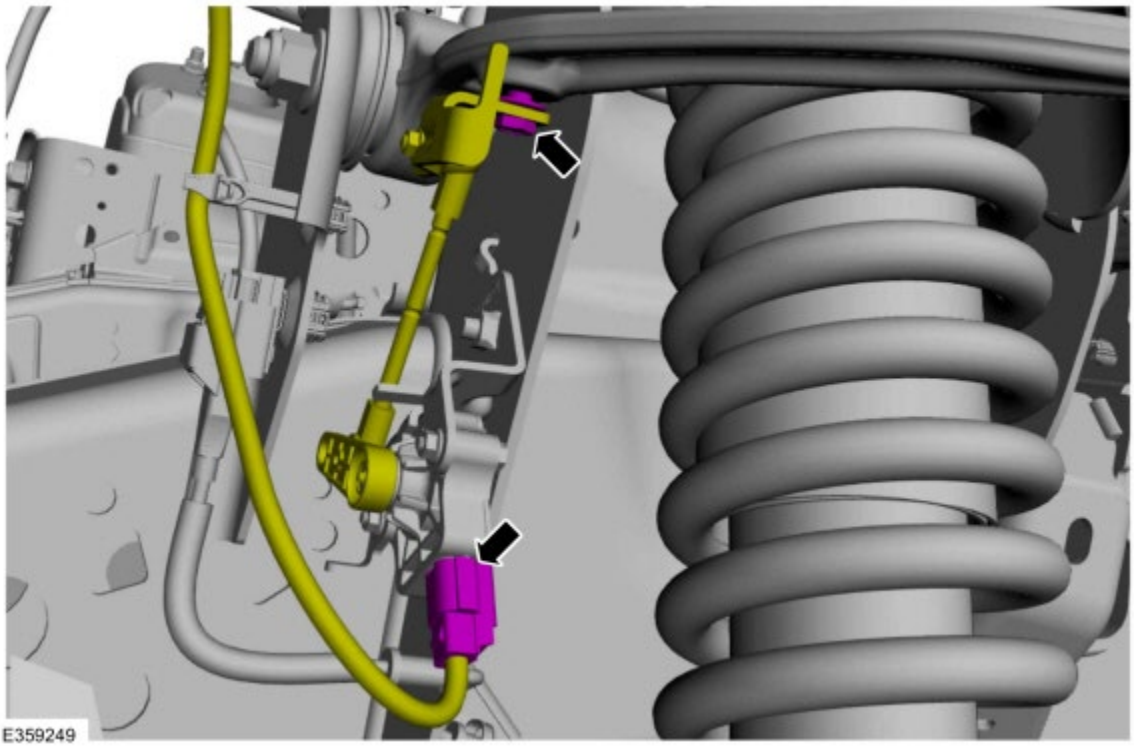
14.

- Disconnect the shock absorber and spring assembly electrical connector from the frame.
- Disconnect the shock absorber and spring assembly wiring harness clips and position aside.

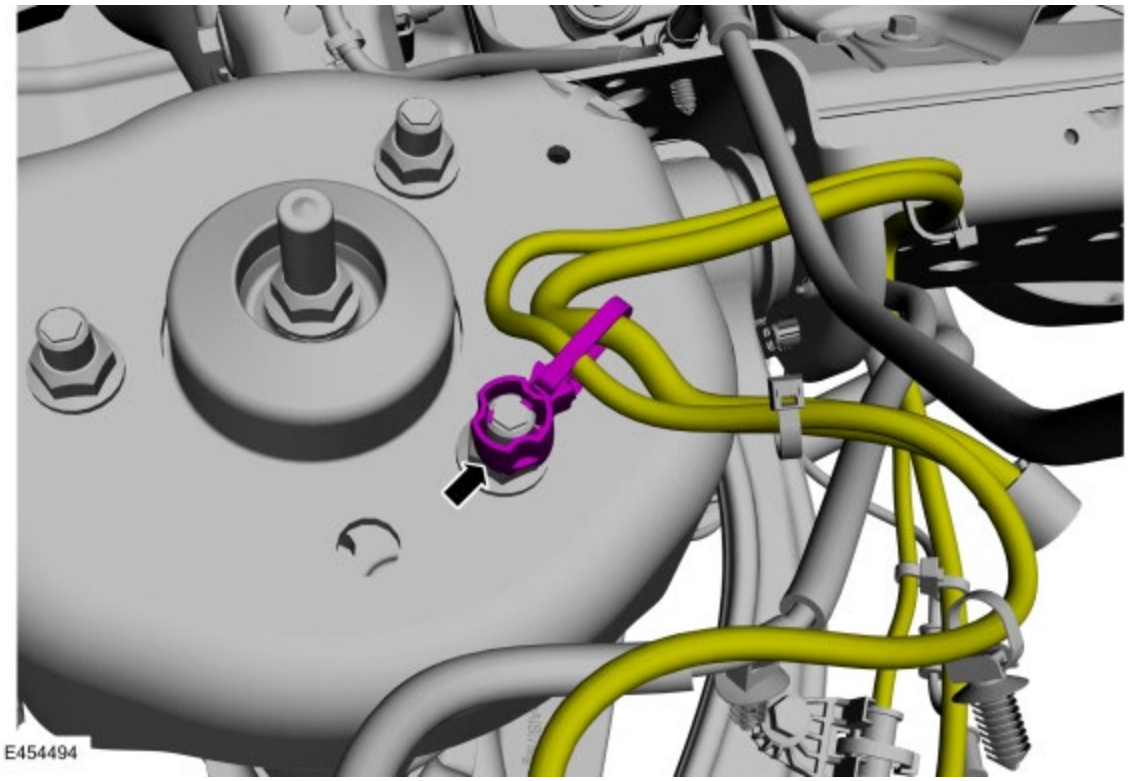


15. **NOTE:** *Note the position of the components before removal.*

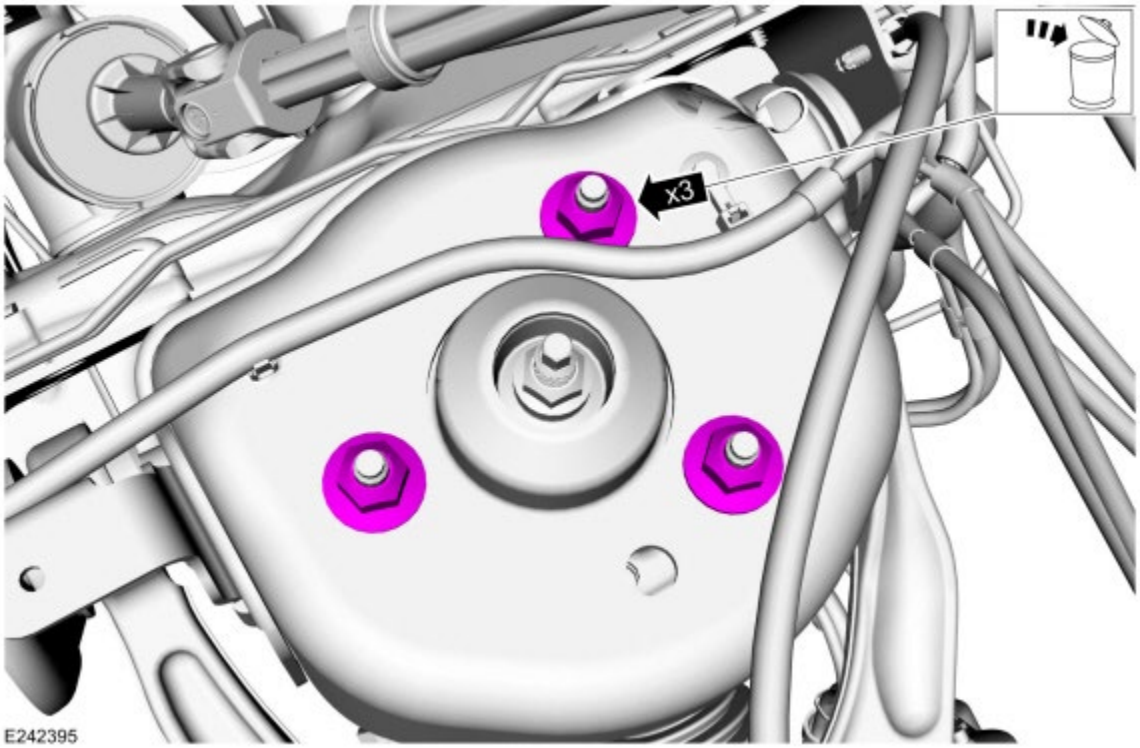
- Disconnect the height sensor electrical connector.
- Remove the bolt and detach the height sensor arm from the upper control arm.



16. If equipped.
    Detach the retainer and position the wiring harness aside.

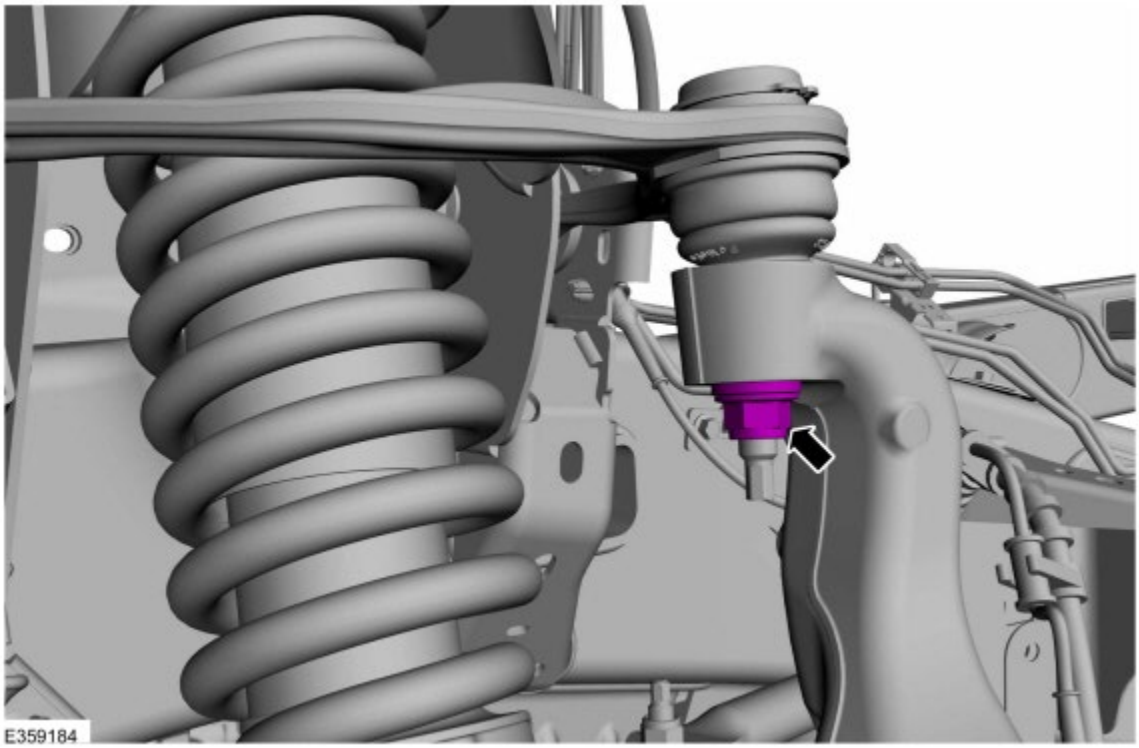


17. Remove and discard the shock absorber and spring assembly upper nuts.



18. **NOTE:** *Use the hex-holding feature to prevent the component from turning.*

    Remove the upper ball joint nut.



19.

1. **NOTE:** *Be sure not to damage the ball joint boot when installing the Ball Joint Separator.*

2. **NOTE:** *This step requires the aid of another technician.*

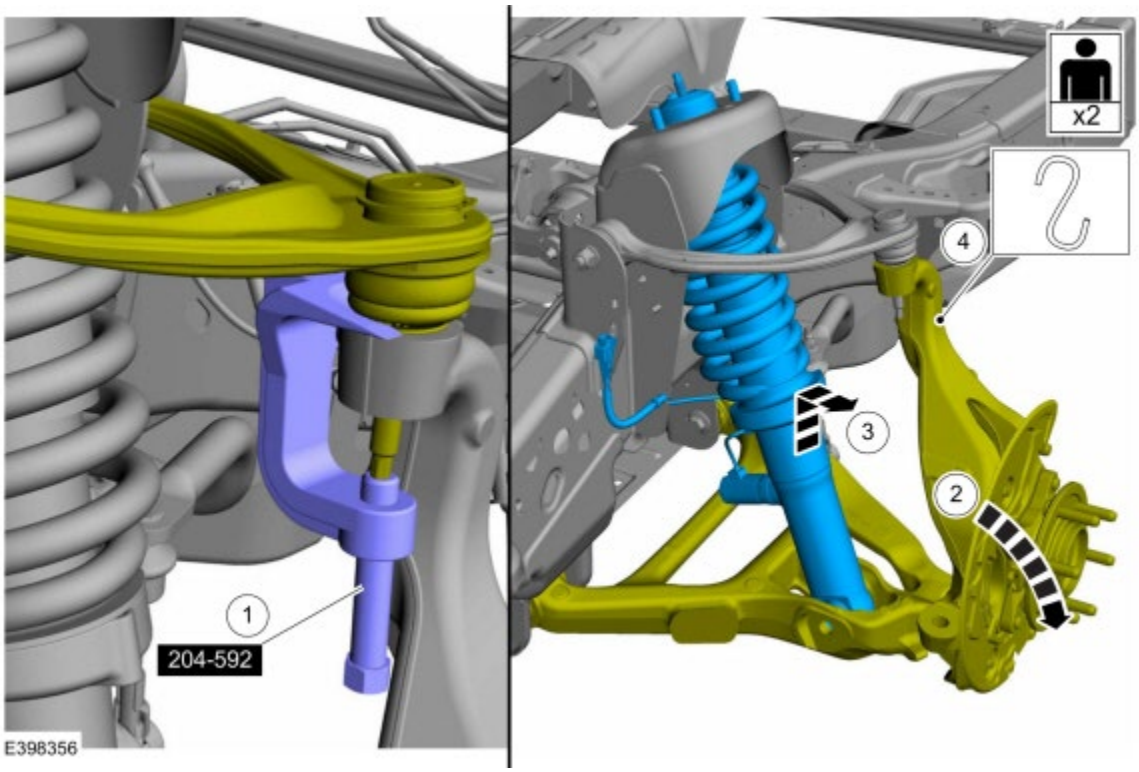
   NOTE: *Take care not to damage coating on suspension components.*

   Lower the lower control arm and wheel knuckle assembly.

3. Remove the shock absorber and spring assembly.

4. **NOTICE: Never allow the knuckle to hang from the upper and lower control arms or damage to the ball joints can occur.**

   Support the wheel knuckle assembly using mechanic's wire.



Shock Absorber and Spring Assembly – Bronco and F-150 Raptor

Special Tool(s) / General Equipment

Spring Compressor
Vise

DISASSEMBLY

NOTICE: Suspension fasteners are critical parts that affect the performance of vital components and systems. Failure of these fasteners may result in major service expense. Use the same or equivalent parts if replacement is necessary. Do not use a replacement part of lesser quality or substitute design. Tighten fasteners as specified.

NOTE: *Disassembly steps in this procedure may contain assembly details.*

1. Remove the shock absorber and spring assembly.

2. **WARNING: Coil springs and strut assemblies are compressed under extreme load. Always use a spring compressor for disassembly. Follow procedure instructions carefully and make sure the spring compressor has the correct spring plates or adapters. Failure to follow these instructions may result in serious personal injury..**

   NOTICE: When installing a suitable spring compressor, use care not to damage the spring coating.

   NOTICE: Take extra care not to damage the component.

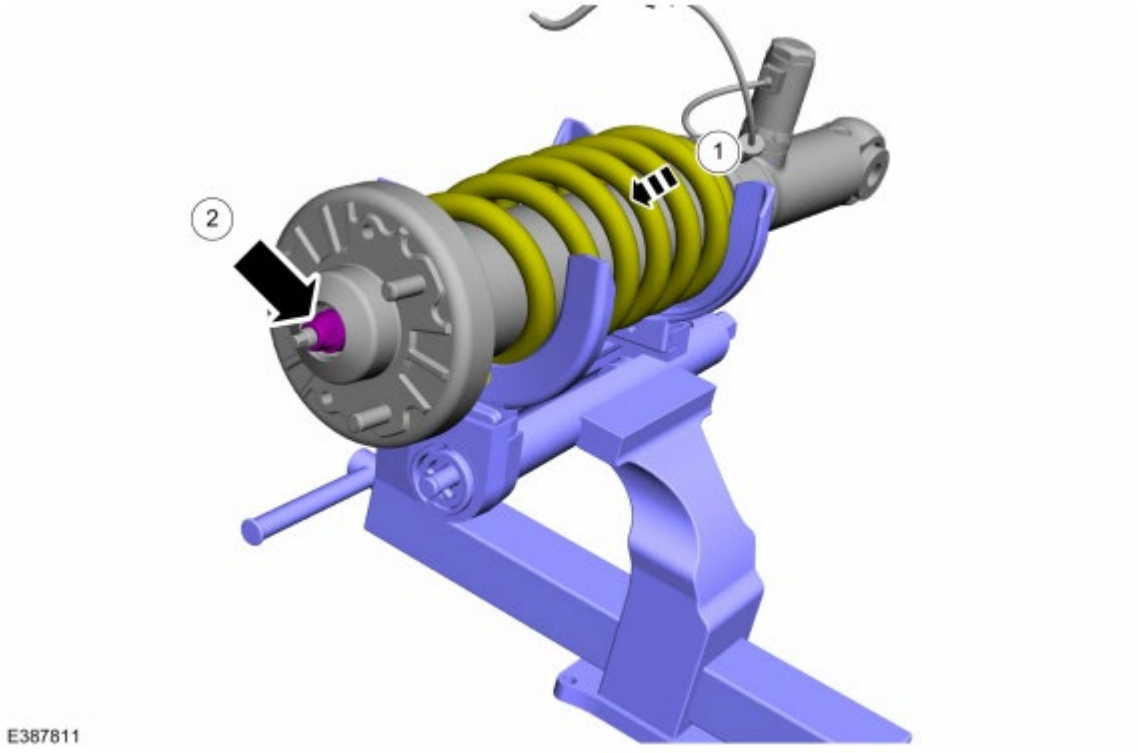
   NOTICE: Do not use power tools to remove the nut.

   NOTE: *Typical assembly shown. actual application may vary.*

   1. Compress the spring until the tension is released from the shock absorber.
      Use the General Equipment: Spring Compressor

   2. **NOTE:** *Use the hex-holding feature to prevent the component from turning.*

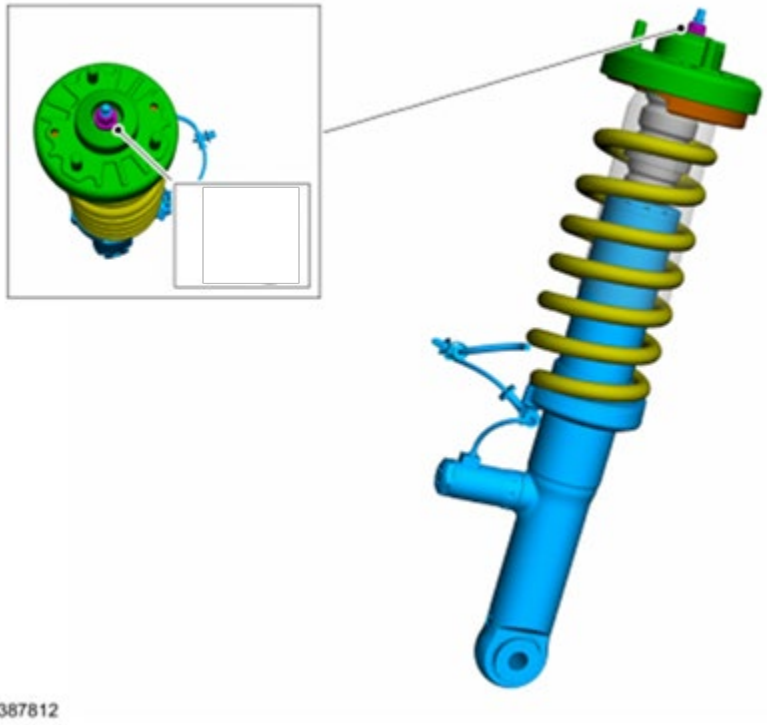
      Carefully loosen the strut rod nut.



3. **NOTE:** *Note the position of the component before removal.*

   NOTE: *Use the hex-holding feature to prevent the component from turning.*

   Carefully remove and discard the strut rod nut. Disassemble the front shock absorber and spring assembly.



ASSEMBLY

1. **WARNING: Take extra care when handling a compressed spring. Failure to follow this instruction may result in personal injury.**

   NOTE: *Make sure that the spring coating is not damaged during assembly process.*

   NOTE: *Make sure that the spring is not overcompressed during installation.*

   NOTE: *Make sure that the spring is correctly located in the upper and lower spring isolator pad.*

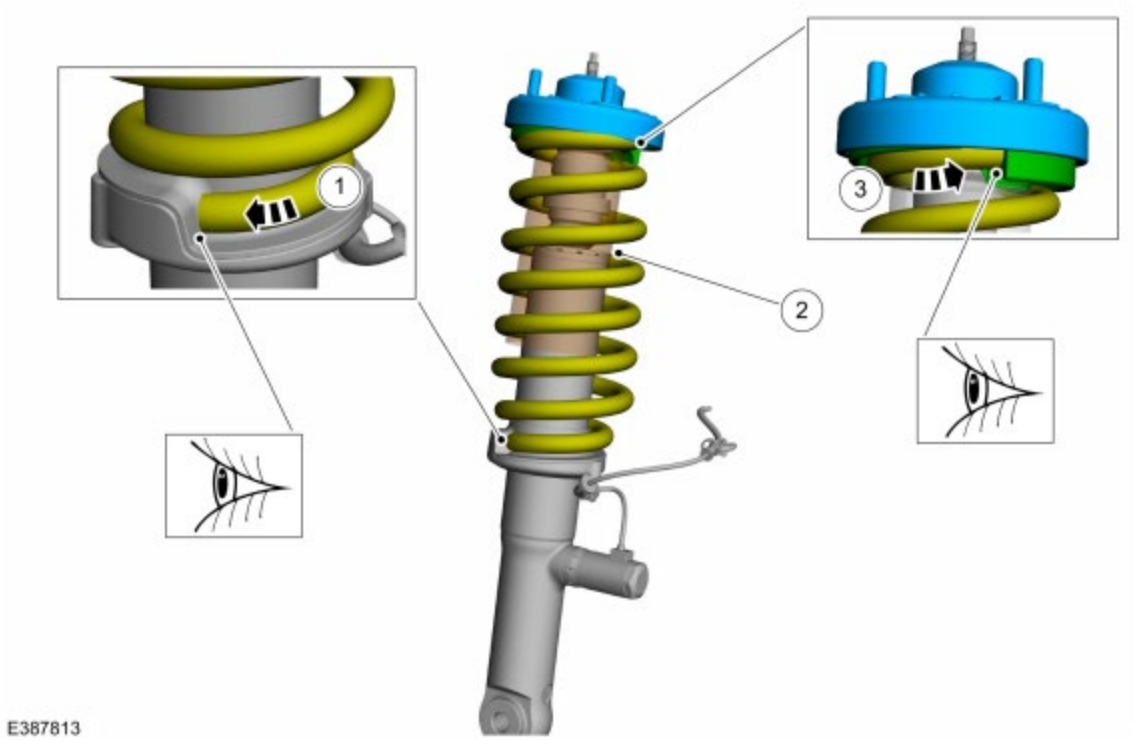
   NOTE: *Make sure that the components are installed to the position noted before removal.*

   If installing a new component, remove the barcode label from the upper spring seat.

   1. Align the coil spring to contact the step in the lower spring seat.

   2. Insert the dustboot in to upper isolator.

   3. Place the upper isolator and boot assembly on top of the coil spring and rotate clockwise until the isolator step aligns with the coil spring.
      Use the General Equipment: Spring Compressor

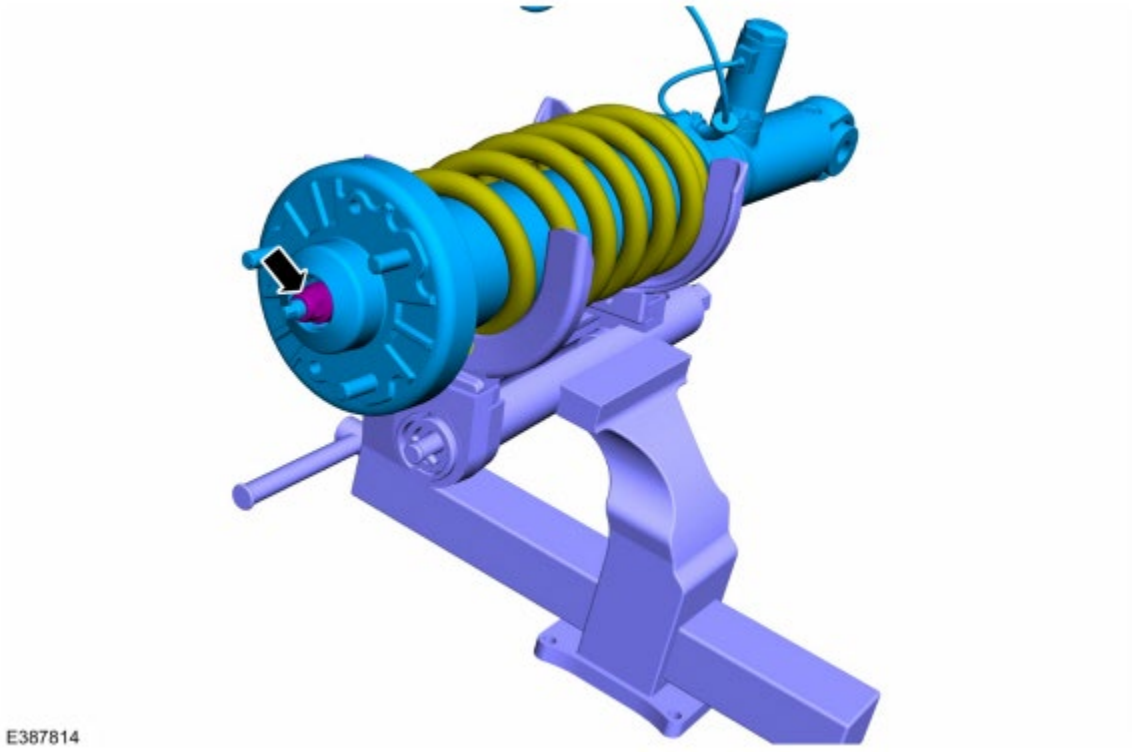


2. **WARNING: Take extra care when handling a compressed spring. Failure to follow this instruction may result in personal injury.**

   NOTE: *Use the hex-holding feature to prevent the strut rod from rotating while removing and installing the strut rod nut.*

   NOTE: *Only tighten the nut finger tight at this stage.*

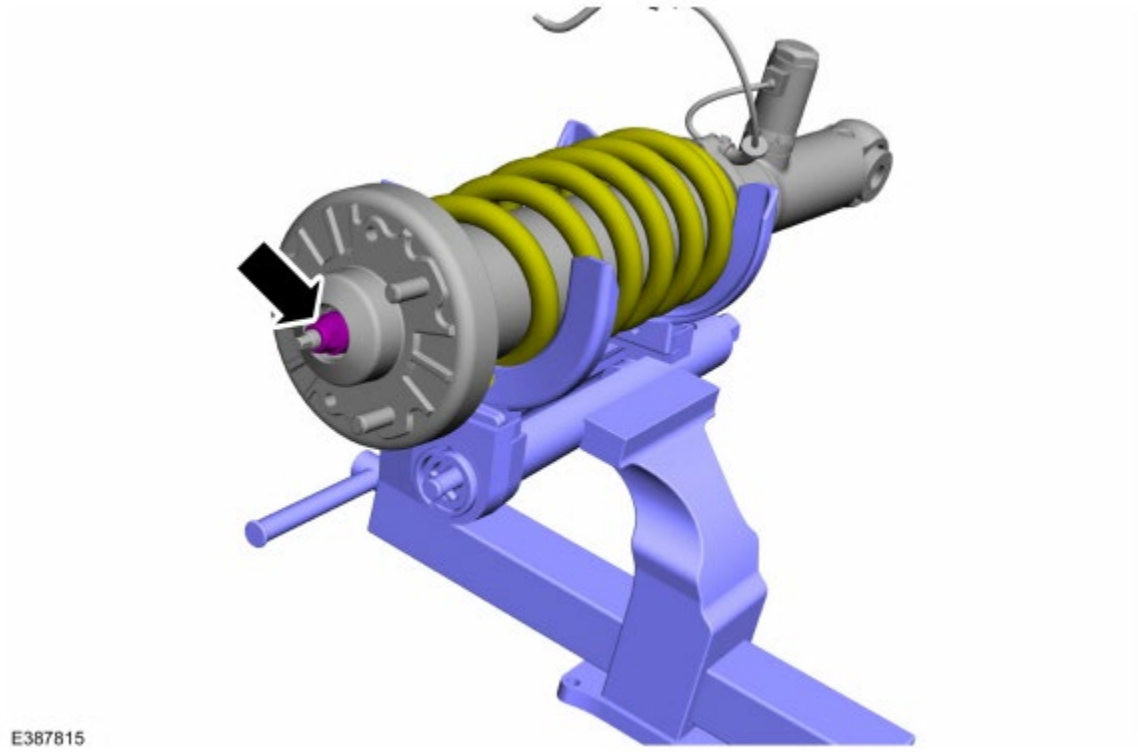
   Install the shock absorber and the upper mount and strut nut.
   Use the General Equipment: Spring Compressor
   Use the General Equipment: Vise



E387814

3. **NOTE:** *Use the hex-holding feature to prevent the strut rod from rotating while removing and installing the strut rod nut.*

   While holding the shock absorber rod, tighten the nut.
   Use the General Equipment: Spring Compressor
   Use the General Equipment: Vise
   Torque: 41 lb.ft (55 Nm)



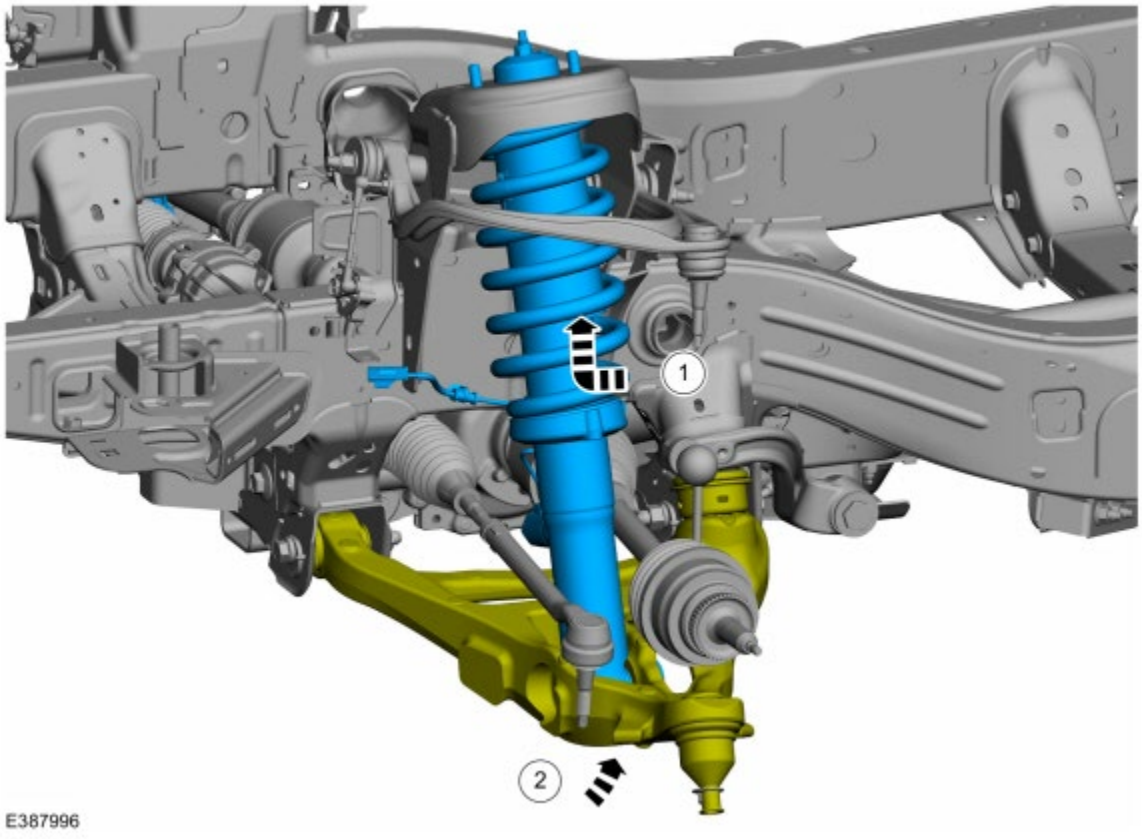
4. Release the spring tension and remove the spring compressor.
   Use the General Equipment: Spring Compressor

5. Install the shock absorber and spring assembly.

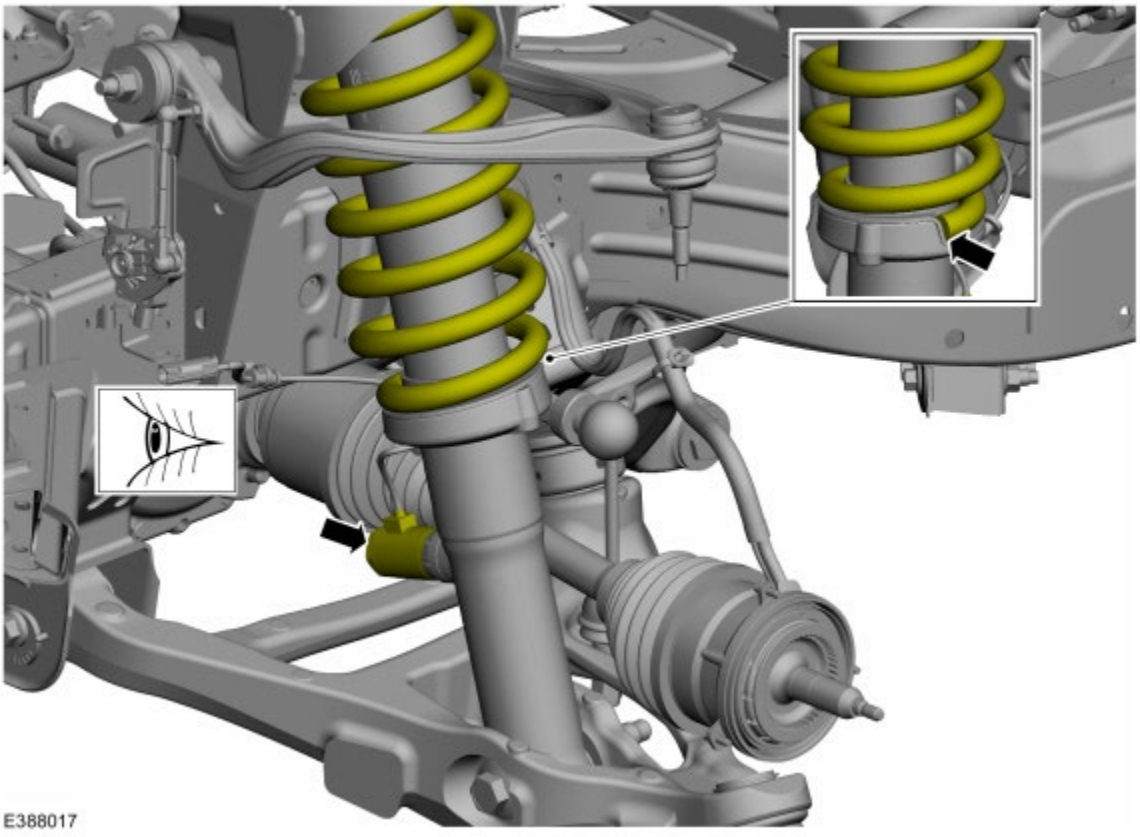
Front Suspension Assembly Installation – Bronco Raptor

NOTICE: Tighten the suspension bushing fasteners with the suspension raised by a jack to curb height or with the weight of the vehicle resting on the wheels and tires. Otherwise, damage to the bushings may occur.

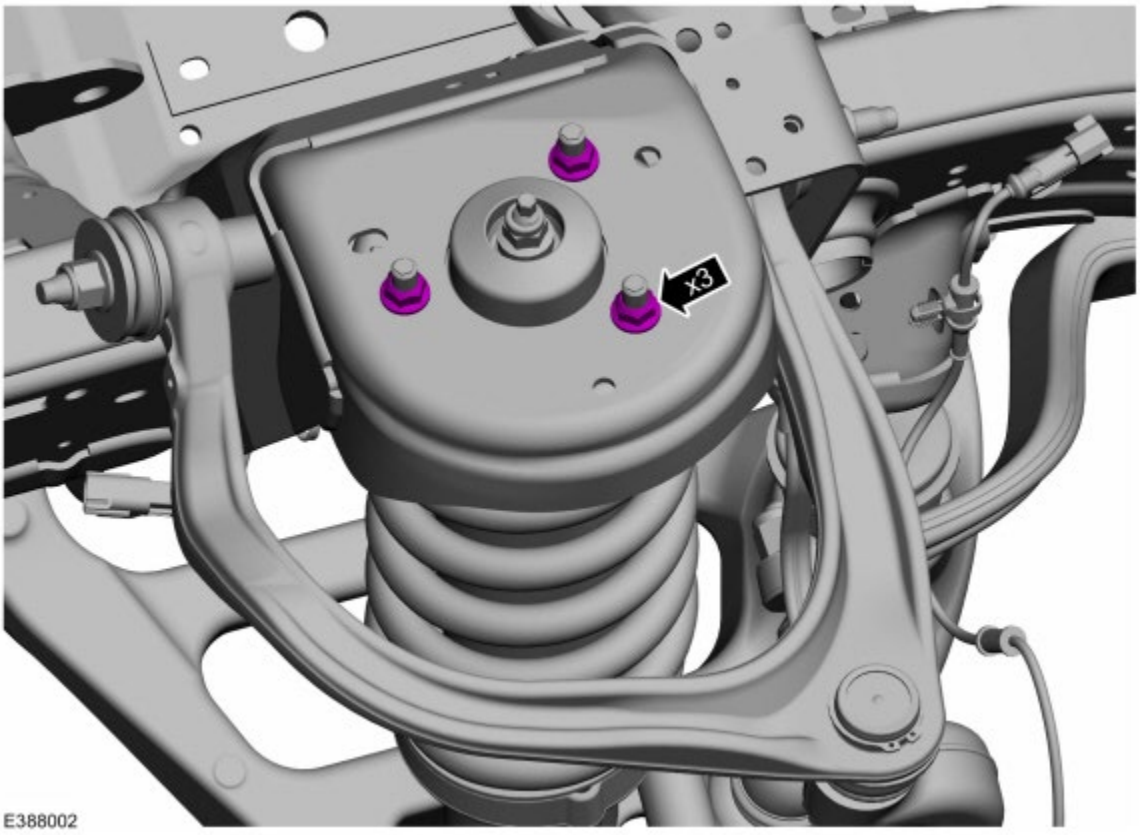
1.
    1. Install the shock absorber and spring assembly.
    2. Position the lower arm up.



2. Make sure the position of the solenoid should be in inboard direction.



3. Install the new shock absorber and spring assembly upper nuts.
   Torque: 52 lb.ft (70 Nm)

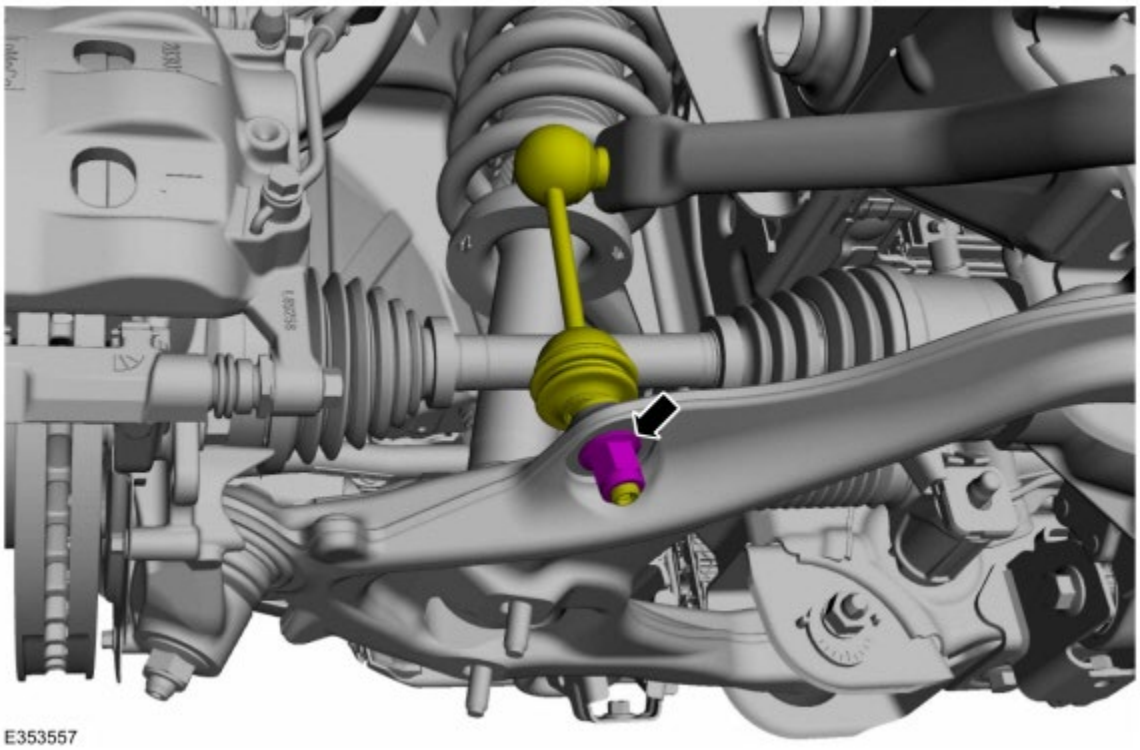


4. Install the wheel knuckle.
   Refer to: Wheel Knuckle - Raptor (204-01 Front Suspension, Removal and Installation).

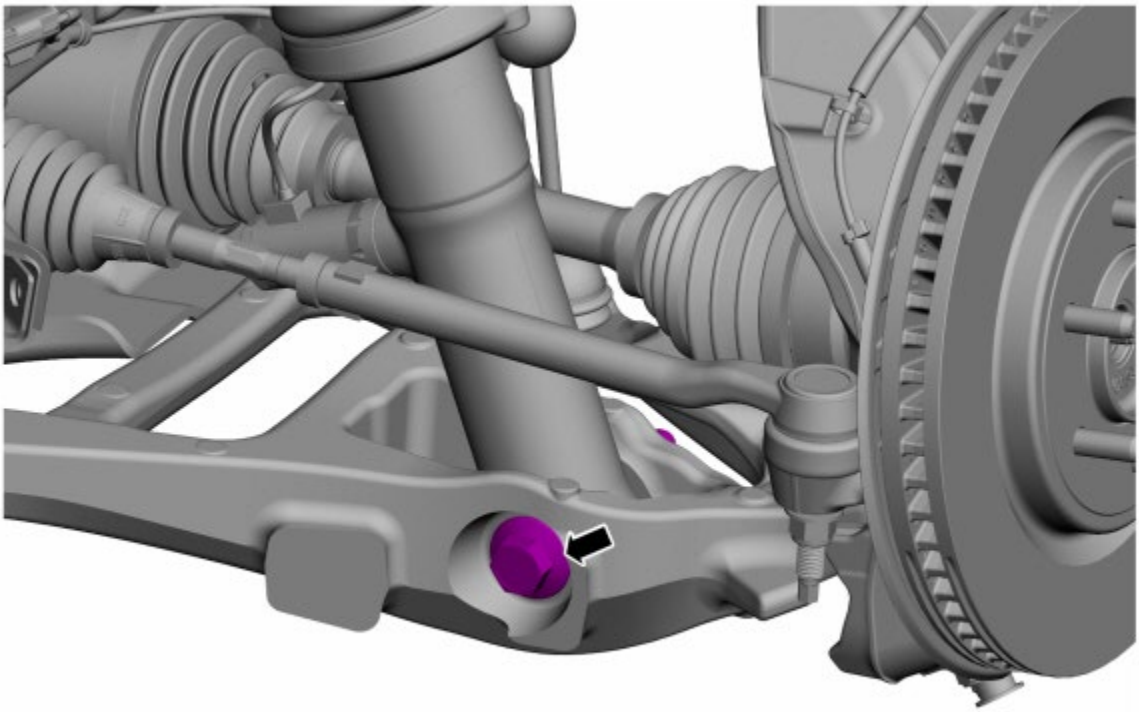
5. **NOTE:** *The stabilizer bar links are designed with low friction ball joints that have a low breakaway torque.*

   NOTE: *Use the hex-holding feature to prevent the stud from turning while removing the nuts.*

   Install the stabilizer bar link lower nut.
   Torque: 122 lb.ft (165 Nm)

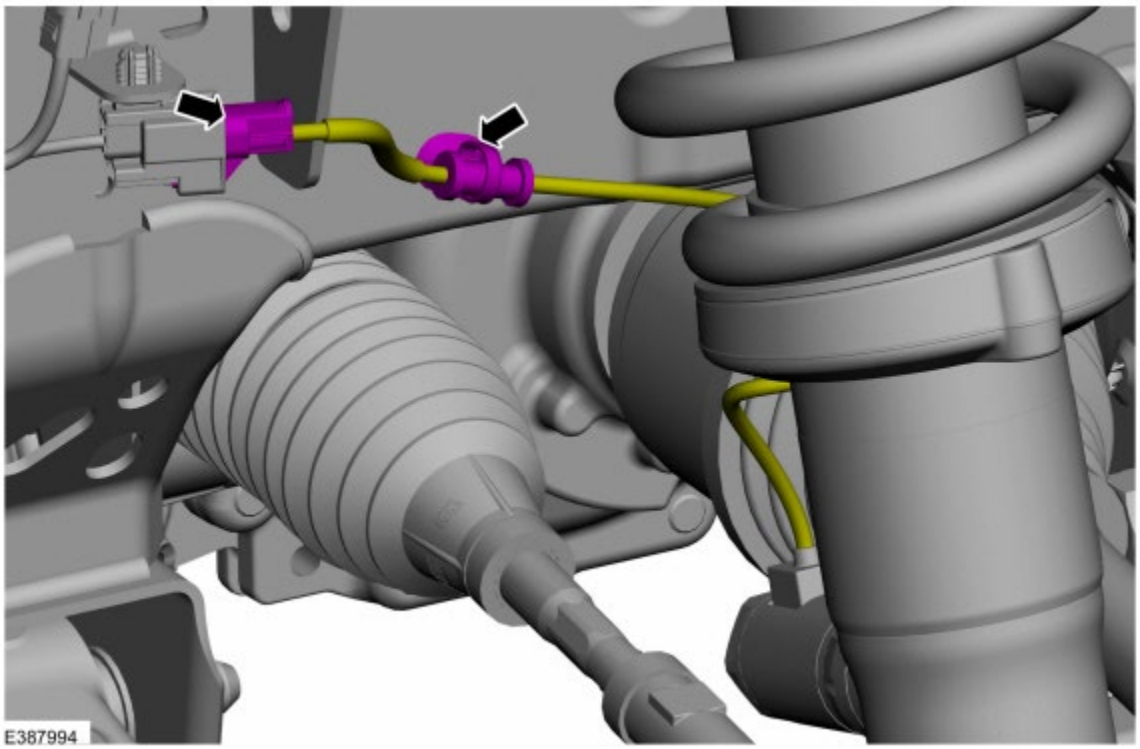


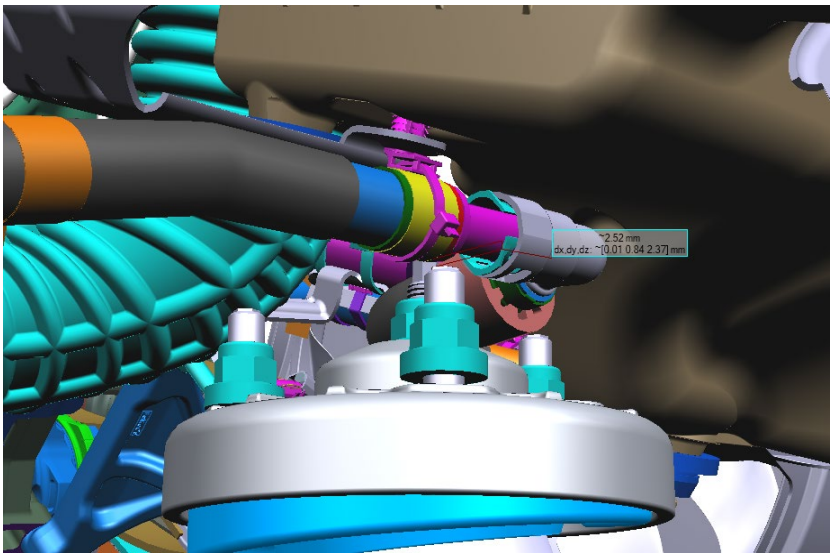
6. Install the shock absorber assembly lower bolt.
   Torque: 431 lb.ft (585 Nm)



E387764

8. Connect the electrical connector, attach the retainer.

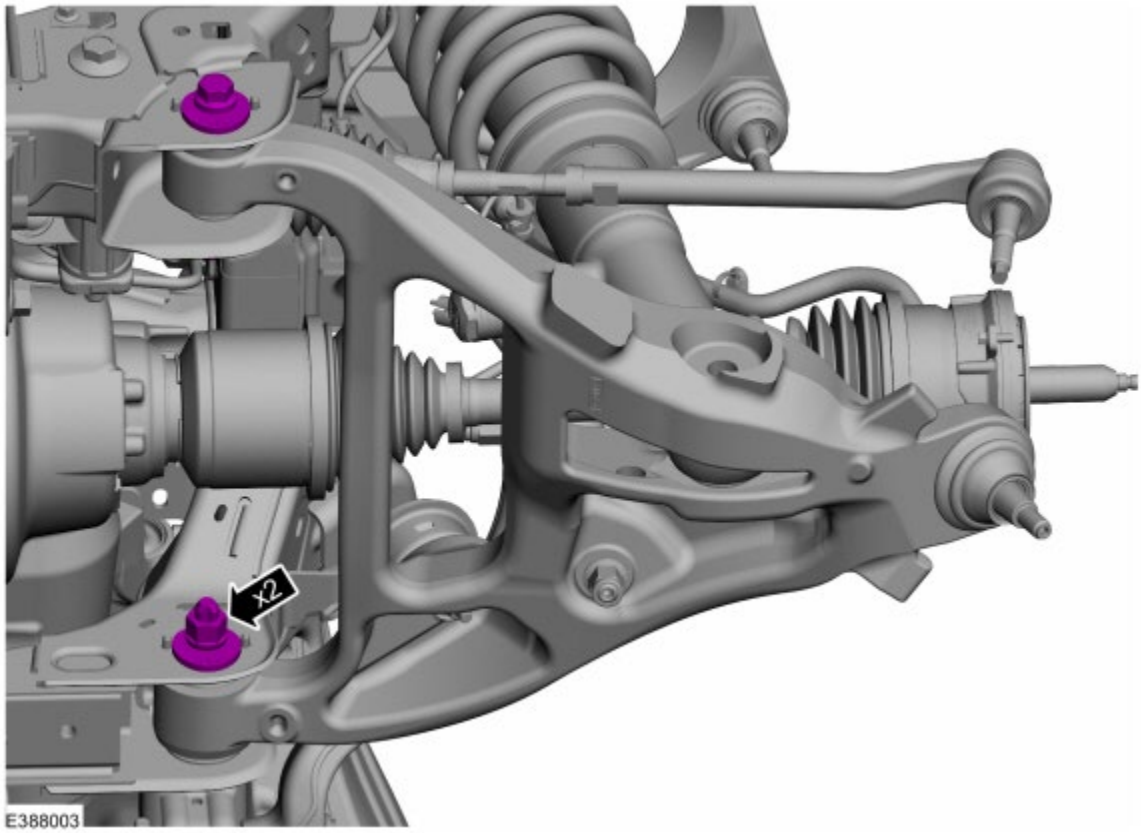




9. Above passenger side top mount, remove existing fir clip cable tie from bracket and cooling line. Replace with provided offset cable tie. Install such that cooling line hose clears top mount stud.

10. **NOTICE: Tighten the suspension bushing fasteners with the suspension raised by a jack to curb height or with the weight of the vehicle resting on the wheels and tires. Otherwise, damage to the bushings may occur.**

    Tighten the lower arm bolts nuts.
    Torque: 210 lb.ft (285 Nm)



10. Install the engine rear undershield.

11. Install the wheel and tire.

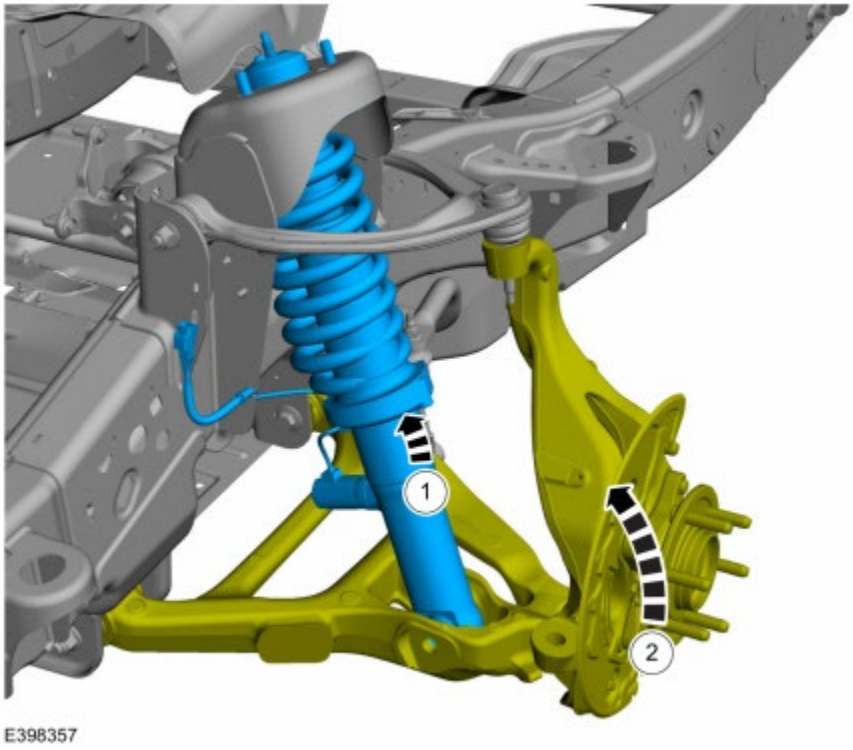
12. Check and if necessary adjust front camber.

13. Check and if necessary adjust front toe.

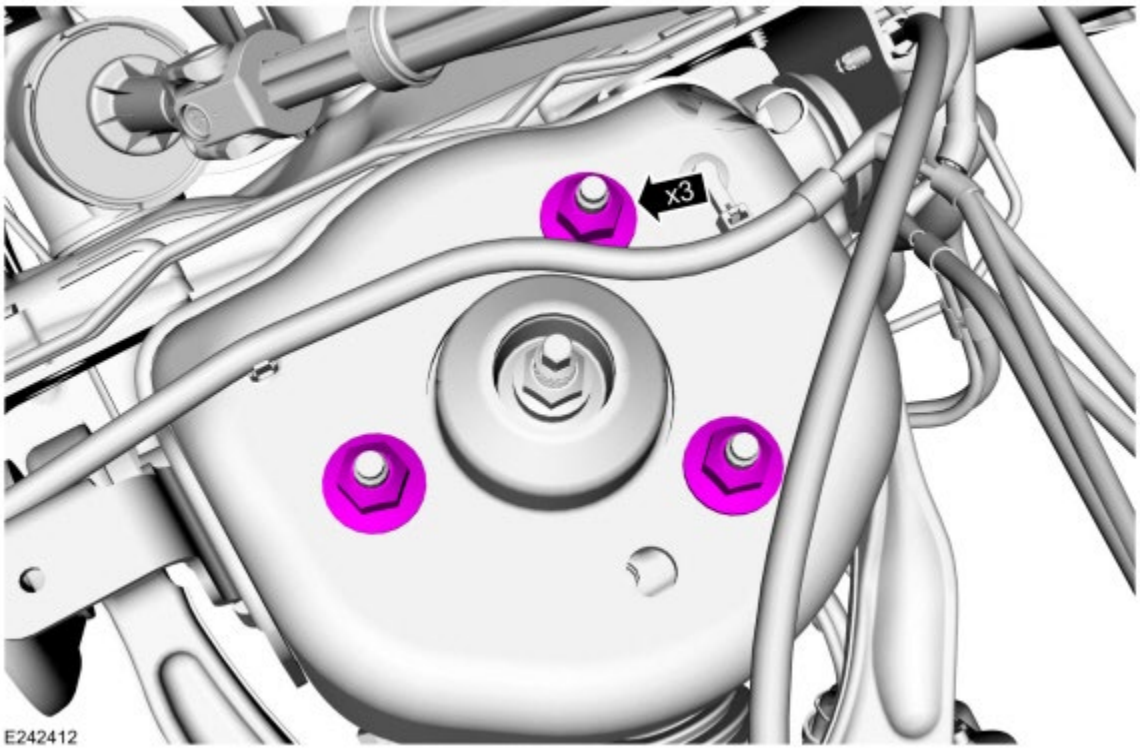
Front Suspension Assembly Installation – F-150 Raptor

1. **NOTE:** *This step requires the aid of another technician.*
    1. Install the shock absorber and spring assembly.

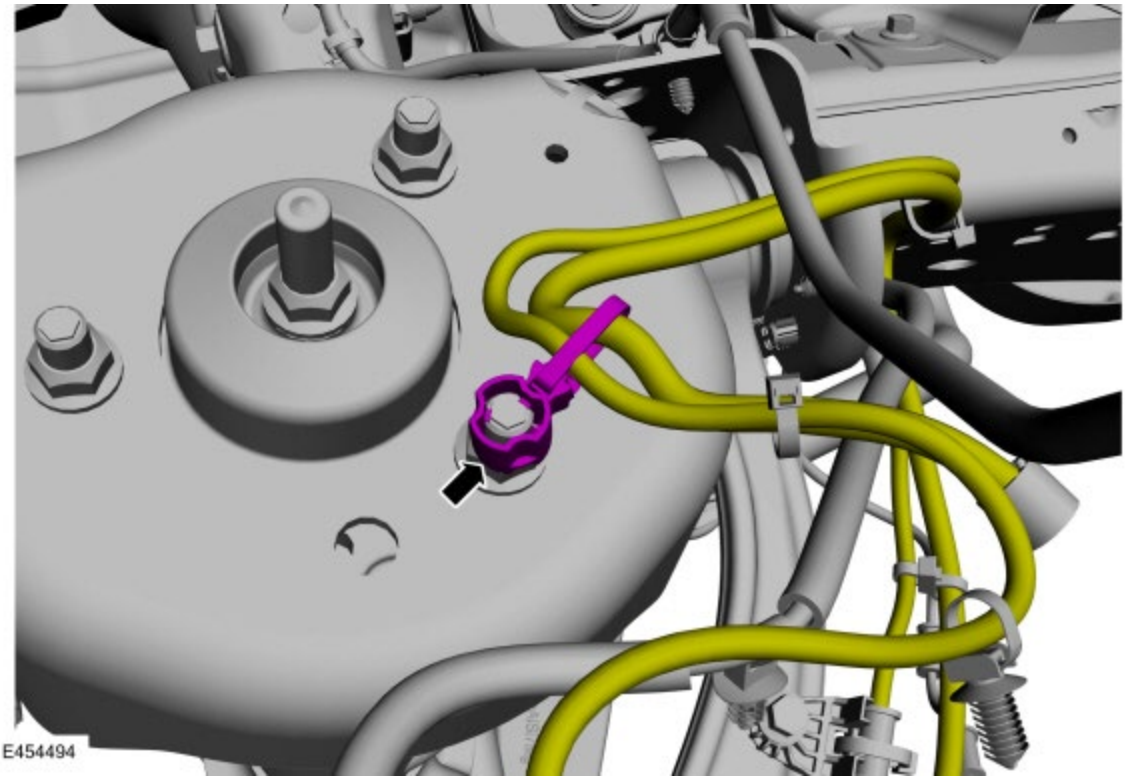
    2. Raise the lower control arm and wheel knuckle assembly.



2. Install the new shock absorber and spring assembly upper nuts.
   Torque: 52 lb.ft (70 Nm)

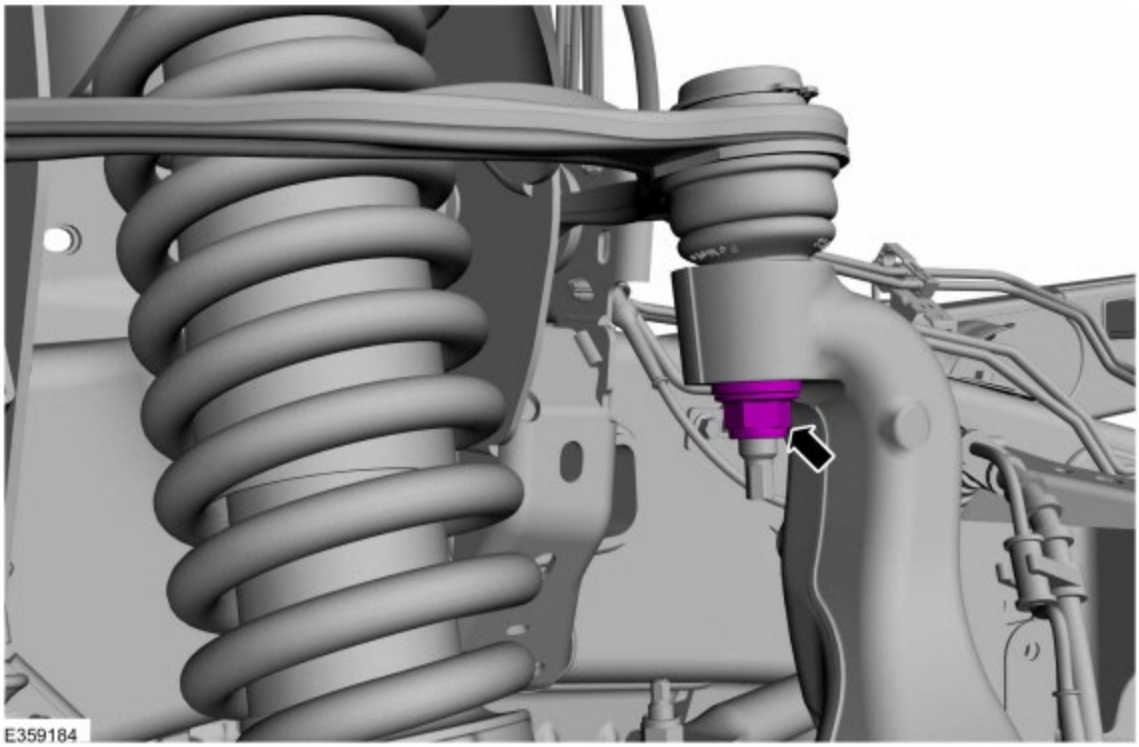


3. If equipped.
   Position the wiring harness and attach the retainer.



4. **NOTE:** *Use the hex-holding feature to prevent the component from turning.*

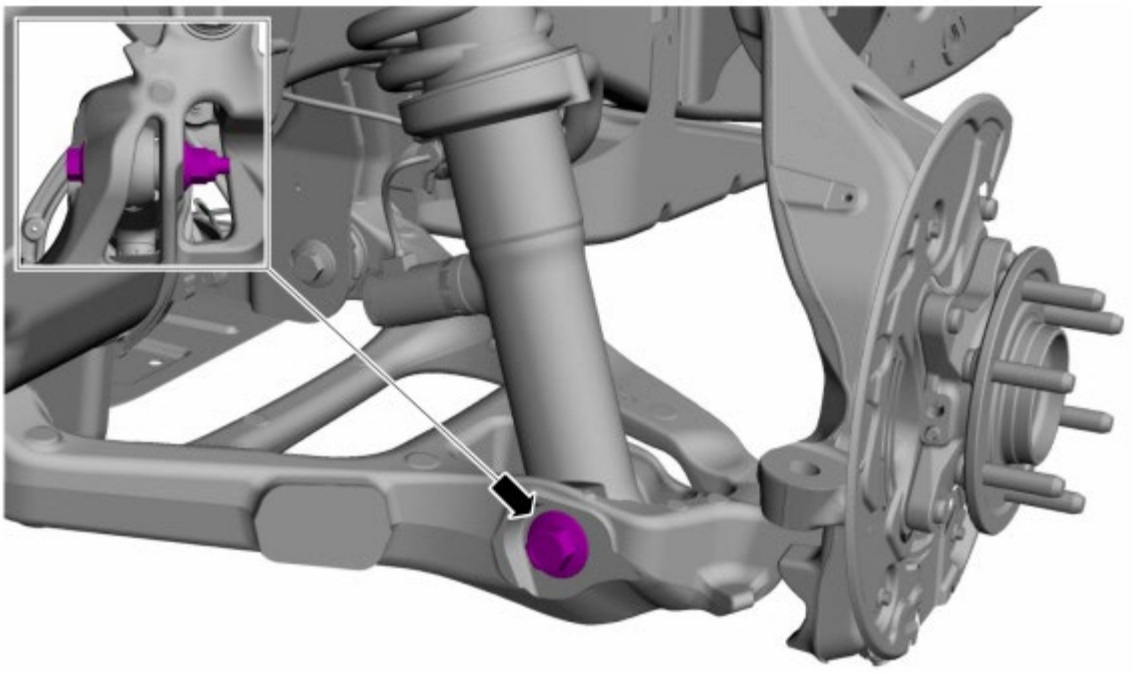
   Install the upper ball joint nut.
   Torque: 46 lb.ft (63 Nm)



5. **NOTICE: Do not tighten the lower shock nut and bolt until the installation procedure is complete and the weight of the vehicle is resting on the wheel and tire assemblies or incorrect clamp load and bushing damage may occur.**

   NOTE: *Only tighten the nut and bolt finger tight at this stage.*

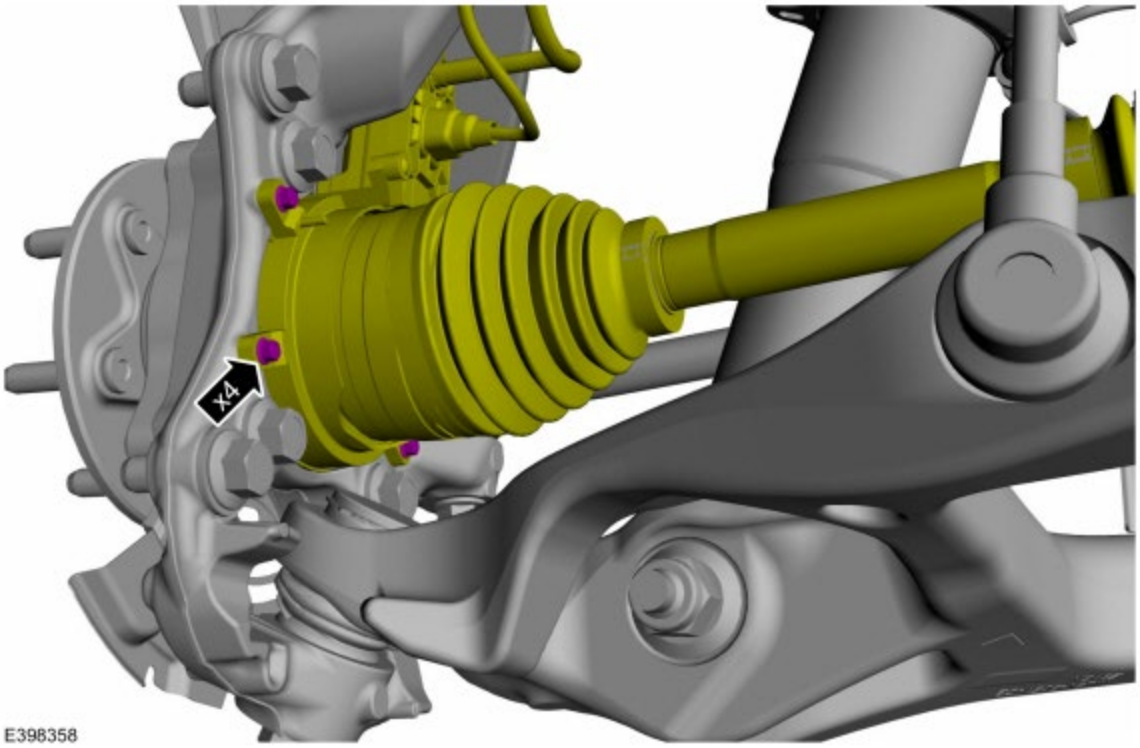
   Install the lower shock absorber nut and bolt.



E398355

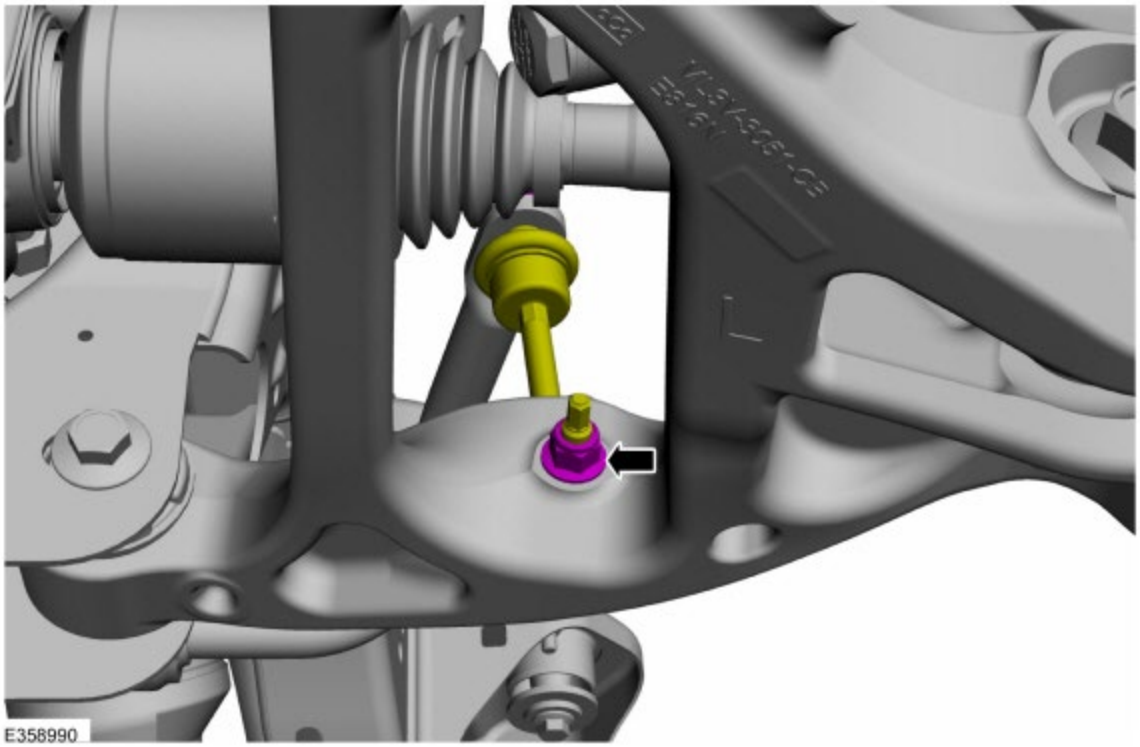
6. **NOTE:** *Use the hex-holding feature to prevent the component from turning.*

   Position the halfshaft and install the IWE bolts.
   Torque: 106 lb.in (12 Nm)



7. **NOTE:** *Use the hex-holding feature to prevent the component from turning.*

   Position the stabilizer bar link and install the front stabilizer bar link lower nut.
   Torque: 59 lb.ft (80 Nm)

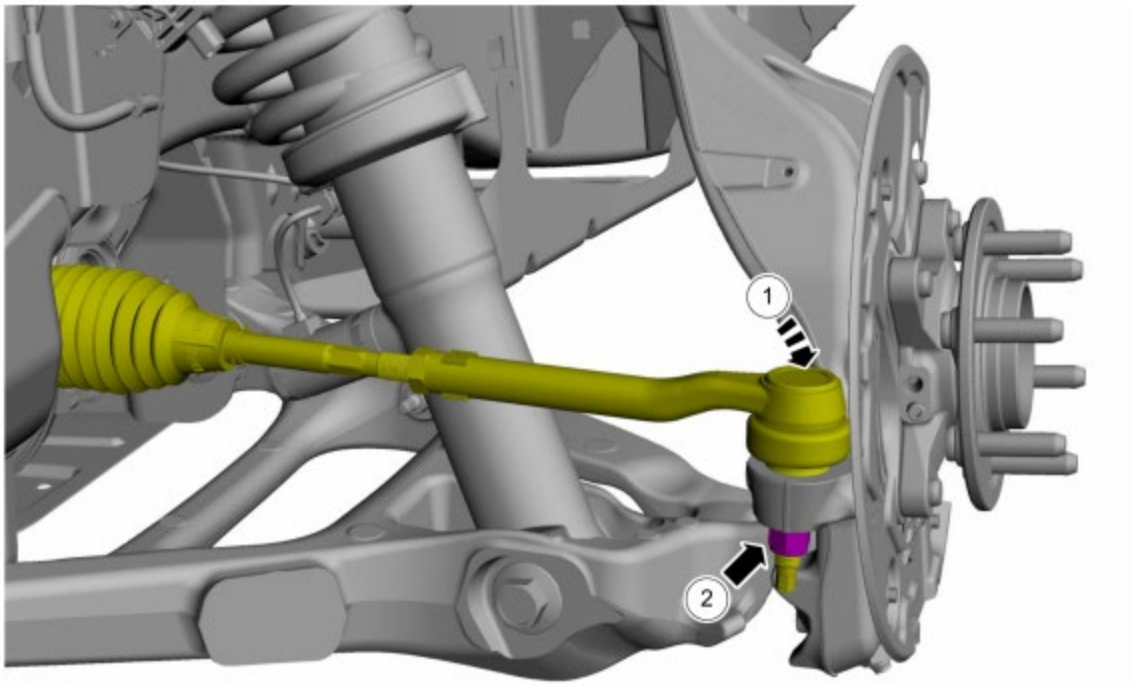


8.

1. Connect the tie rod end to the wheel knuckle.

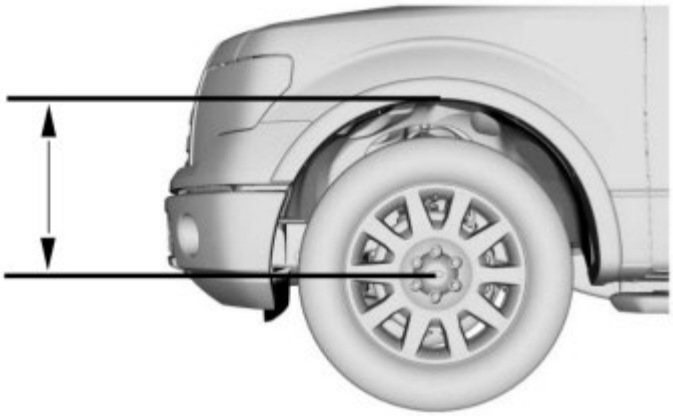
2. **NOTE:** *Use the hex-holding feature to prevent the component from turning.*

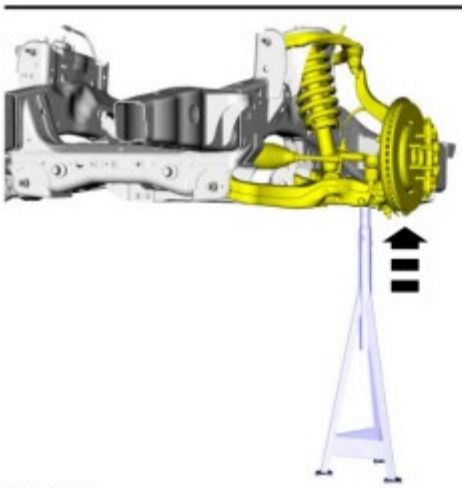
   Install the tie rod end nut.
   Torque: 85 lb.ft (115 Nm)



E398353

9. Use a suitable jack to raise the suspension until the distance between the center of the hub and the lip of the fender is equal to the measurement taken during removal (curb height).
   Use the General Equipment: Vehicle/Axle Stands

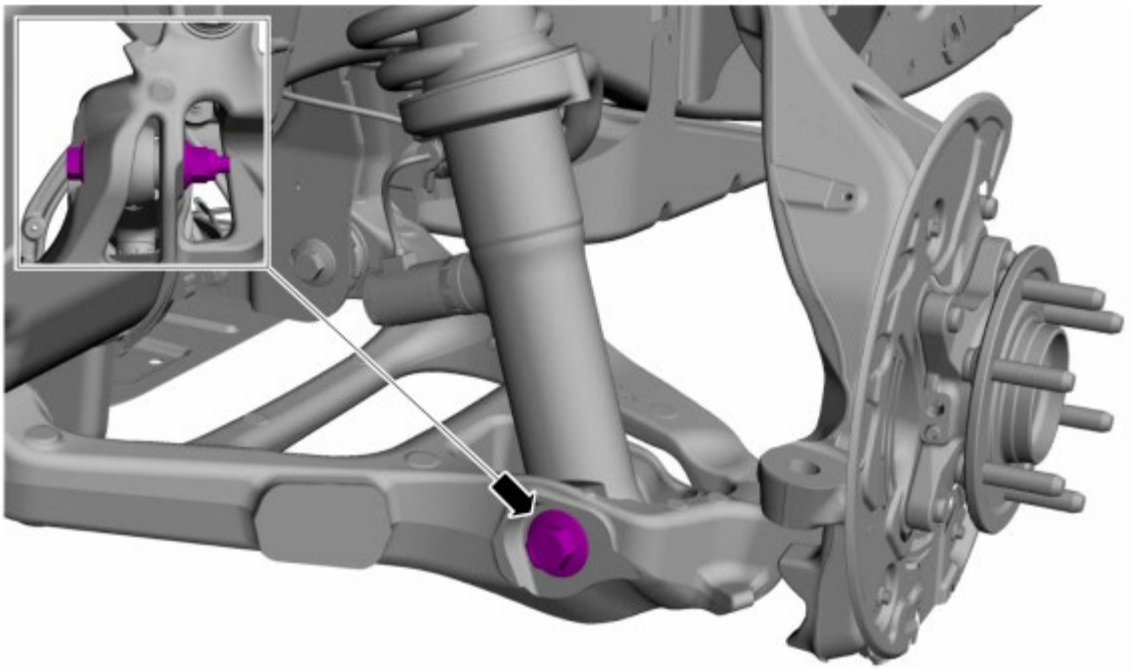




E190040

10. **NOTICE: Tighten the lower shock nut and bolt with the weight of the vehicle resting on the wheel and tire assemblies or incorrect clamp load and bushing damage may occur.**

    Tighten the lower shock absorber nut and bolt.
    Torque: 406 lb.ft (550 Nm)

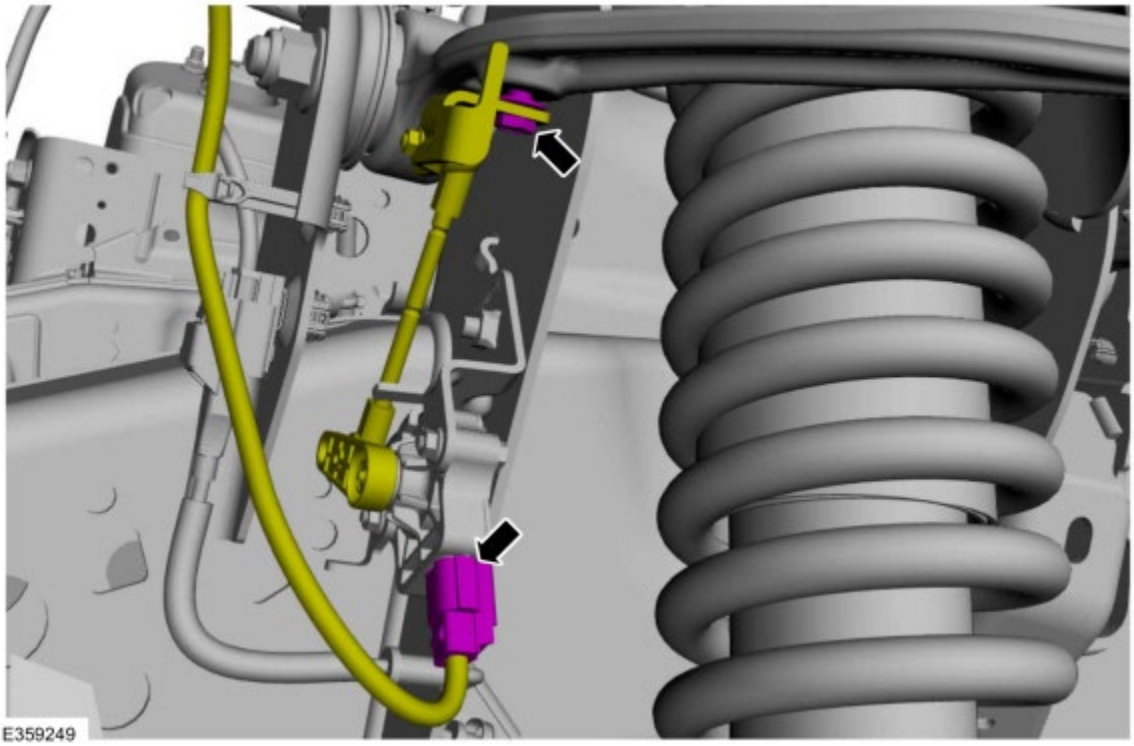


E398355

11. **NOTICE: The linkage must be in a vertical position after installation. Failure to follow these instructions may result in component damage and/or failure.**

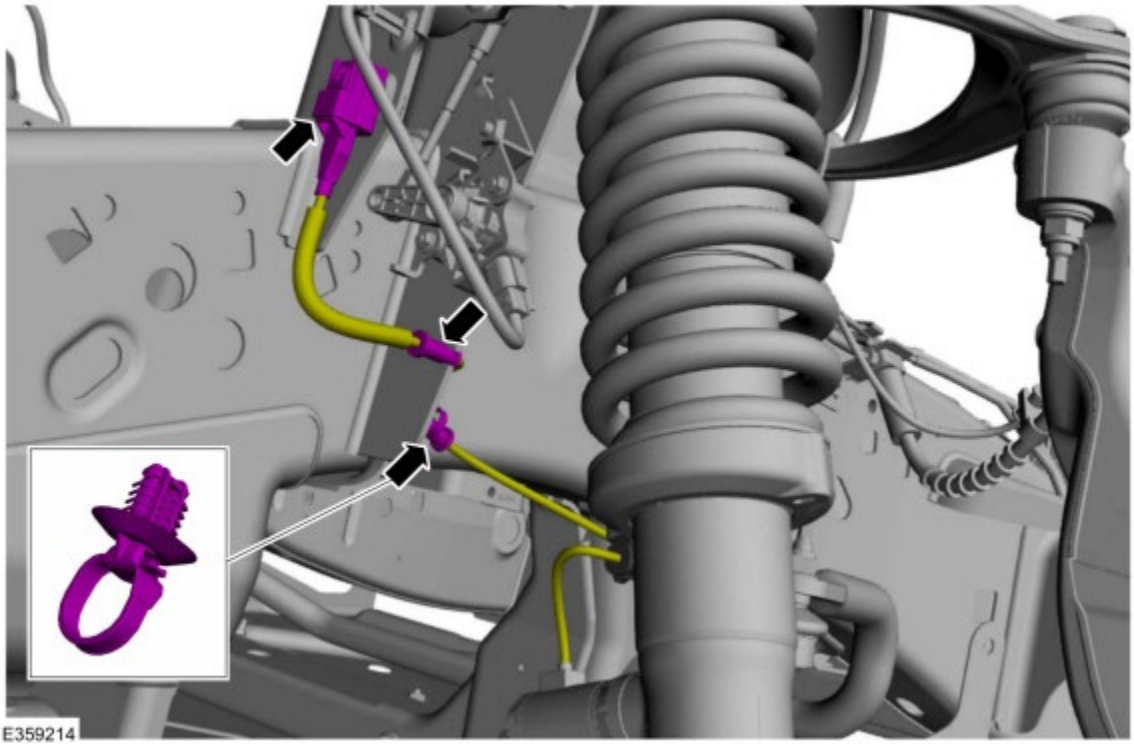
    NOTE: *Make sure that the components are installed to the position noted before removal.*

    - Attach the height sensor arm to the upper control arm and install the bolt.
      Torque: 177 lb.in (20 Nm)
    - Connect the height sensor electrical connector.

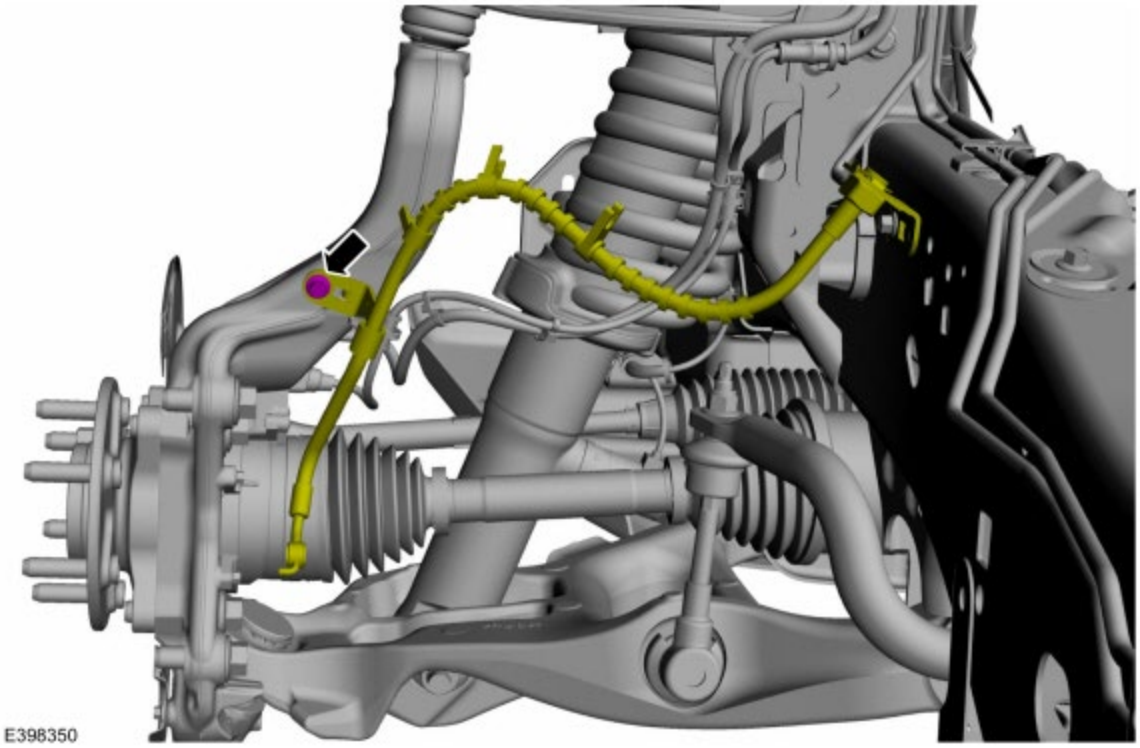


12.

- Position the shock absorber and spring assembly wiring harness and connect the wiring harness clips.
- Connect the shock absorber and spring assembly electrical connector.

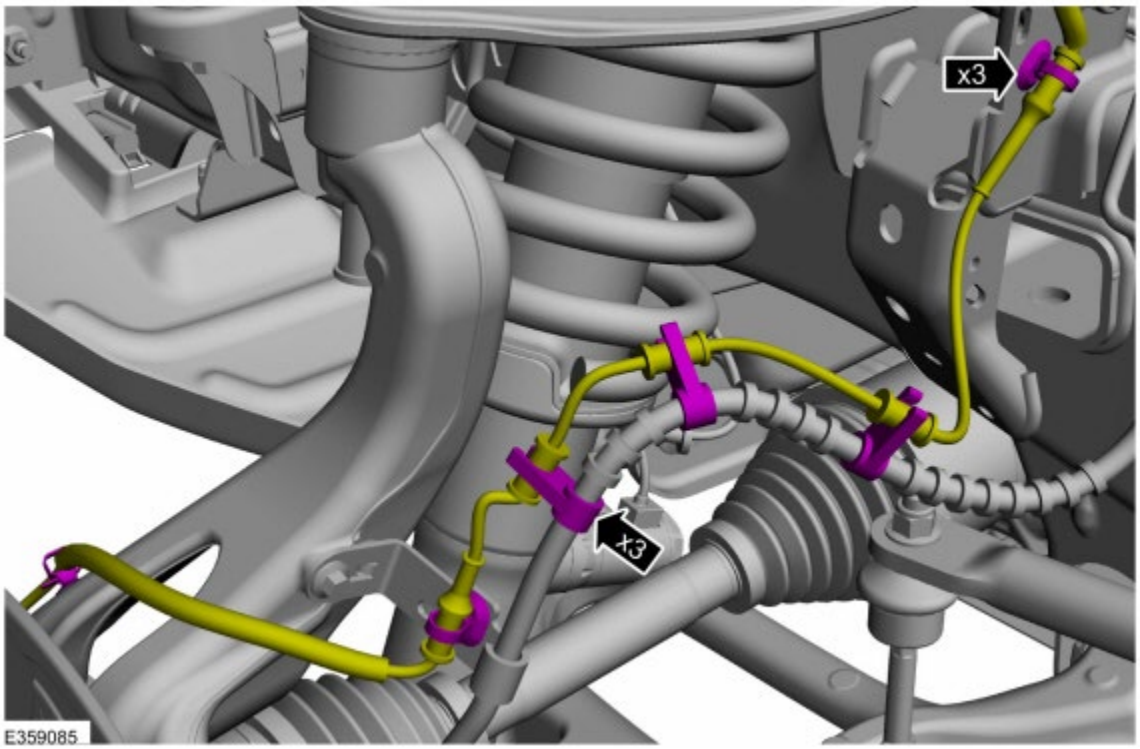


13. Position the brake hose bracket and install the brake hose bracket bolt.
    Torque: 22 lb.ft (30 Nm)



14.

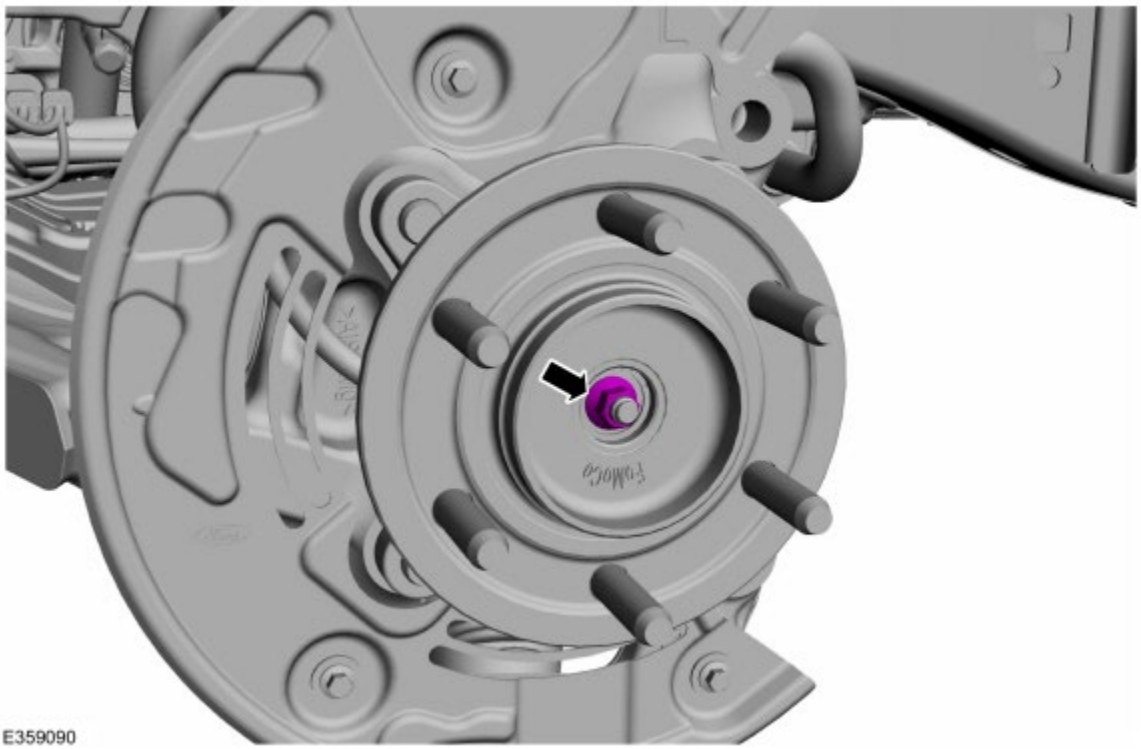
- Position the wheel speed sensor wire and attach the wheel speed sensor wire retainers.
- Attach the wheel speed sensor wire to the brake hose.



15.

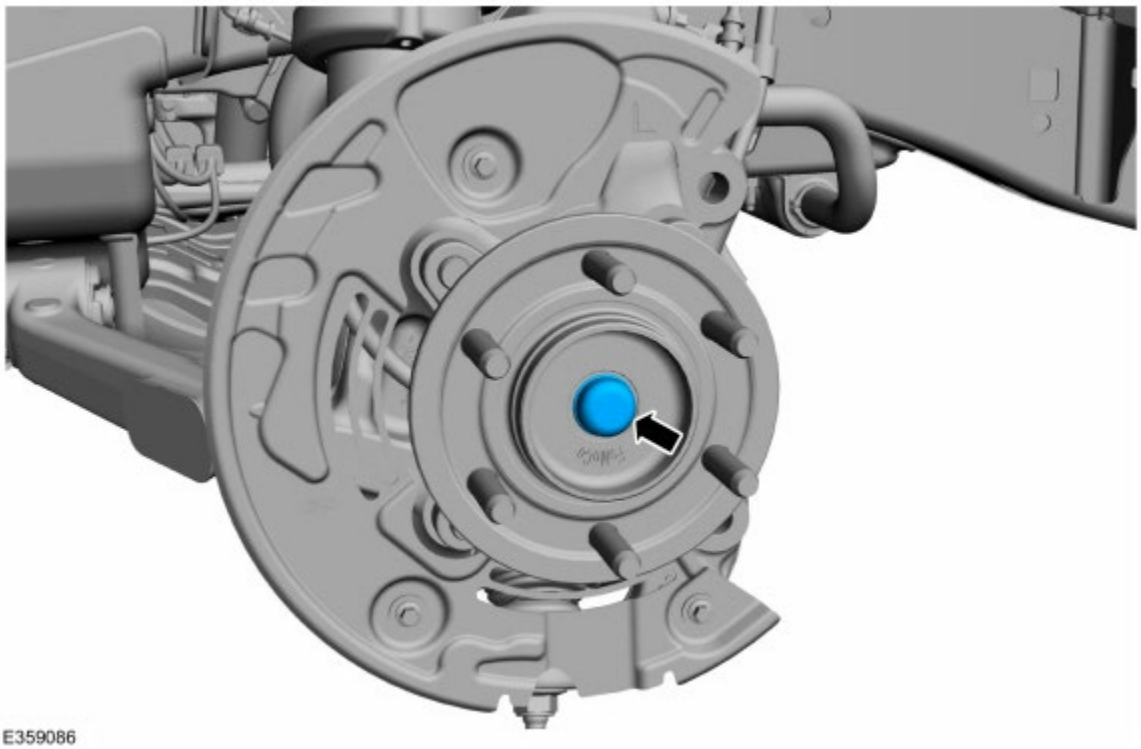
- Install the axle nut.
  Torque: 30 lb.ft (40 Nm)

- Make sure the wheel hub and IWE rotate together.



16. **NOTE:** *If the dust cap to bearing interface is damaged, damaged parts must be replaced.*

    Install the dust cap.

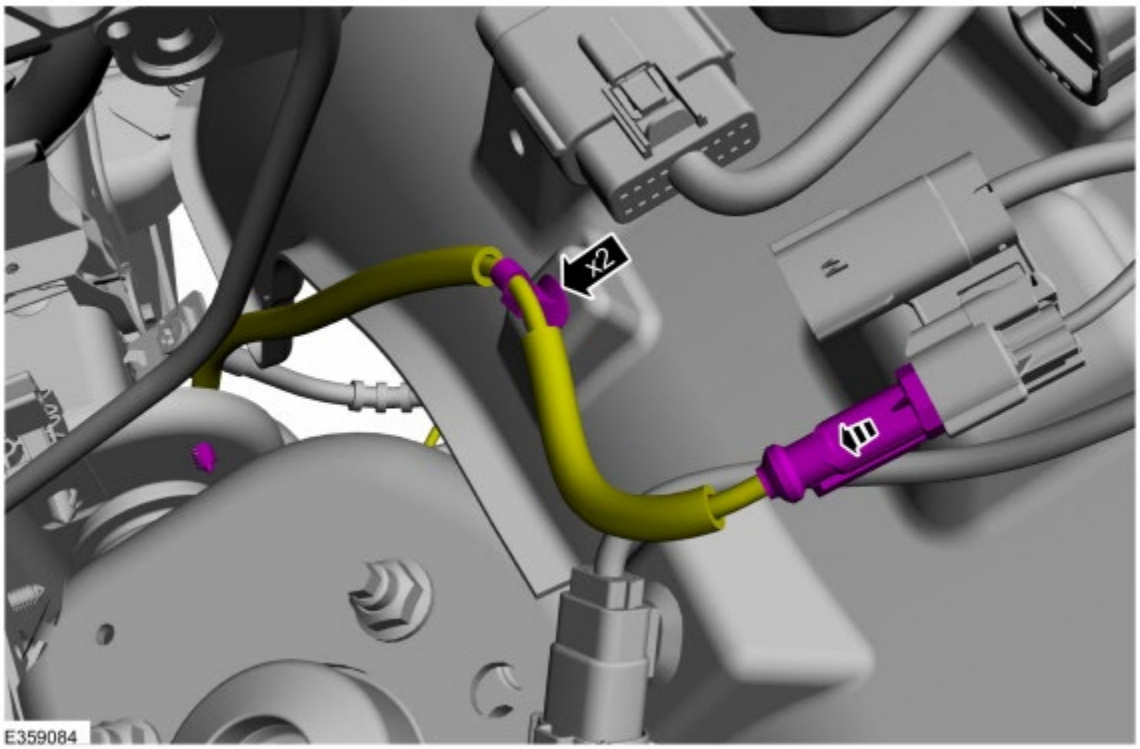


E359086

17. Install the brake disc.

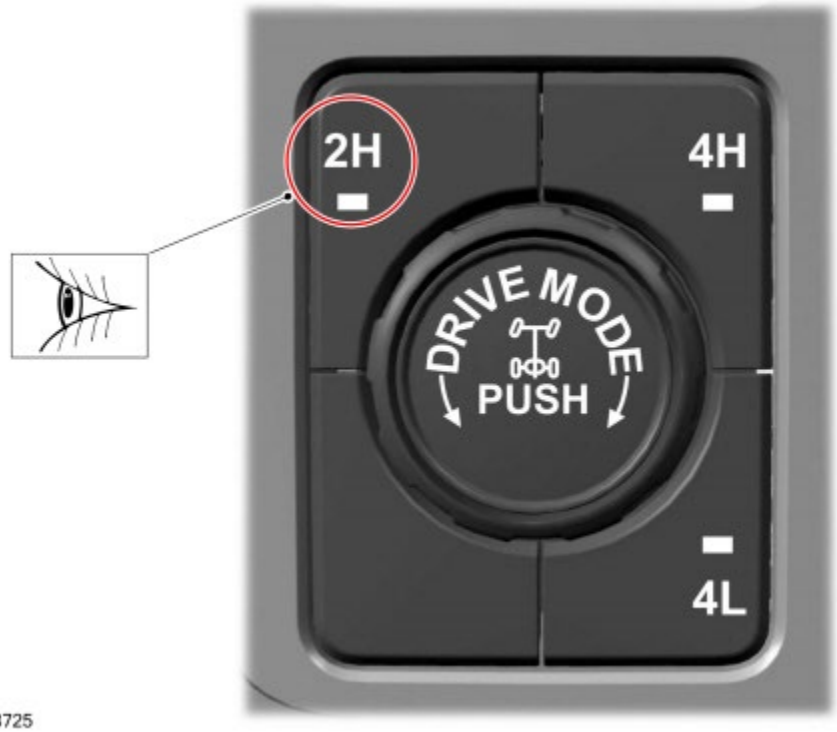
18. **NOTE:** *The wheel speed sensor electrical connector is located in the engine compartment secured to the fender apron.*

    Connect the wheel speed sensor electrical connector and clip the wheel speed sensor wire retainers.



19. Install the wheel and tire.

20. Select 2H on the ATCM.



21. Check and if necessary adjust front camber.

Torque specifications (Bronco Raptor)

Shock Rod upper nut *Torque*: 41 lb.ft (55 Nm)

Strut Mount nuts *Torque*: 52 lb.ft (70 Nm)

Stabilizer Bar Lower Link nut *Torque*: 122 lb.ft (165 Nm)

Shock Absorber Assembly Lower bolt nut *Torque*: 431 lb.ft (585 Nm)

Front Lower Control Arm nuts *Torque*: 210 lb.ft (285 Nm)

Torque specifications (F-150 Raptor)

Shock absorber and spring assembly upper nuts *Torque*: 52 lb.ft (70 Nm)

Upper ball joint nut *Torque*: 46 lb.ft (63 Nm)

IWE bolts *Torque*: 106 lb.in (12 Nm)

Front stabilizer bar link lower nut *Torque*: 59 lb.ft (80 Nm)

Tie rod end nut *Torque*: 85 lb.ft (115 Nm)

Lower shock absorber nut and bolt *Torque*: 406 lb.ft (550 Nm)

Upper control arm and install the bolt *Torque*: 177 lb.in (20 Nm)

Brake hose bracket bolt *Torque*: 22 lb.ft (30 Nm)

Axle nut *Torque*: 30 lb.ft (40 Nm)